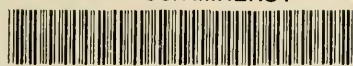


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TRANSACTIONS  
MAINE STATE POMOLOGICAL SOCIETY



1901.



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JOHN W. TRUE, NEW GLOUCESTER.

See page 108.

TRANSACTIONS  
OF THE  
Maine State Pomological Society  
FOR THE YEAR 1901.



EDITED BY THE SECRETARY,  
D. H. KNOWLTON.

---

AUGUSTA.  
KENNEBEC JOURNAL PRINT  
1902

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## SECRETARY'S REPORT.

---

### PAN-AMERICAN EXHIBIT.

The year has been a very busy one for the Pomological society and an unusually large amount of work has been accomplished. It will be remembered that at our winter meeting in Norway Charles S. Pope was instructed to secure contributions of fruit for the purpose of making an exhibition of fruit at Buffalo. Two hundred and fifty dollars was appropriated by the executive committee later on and the same amount was granted by the Legislature. At the Brooks meeting the secretary was instructed to install the exhibition of fruit at Buffalo, but the sickness of his partner prevented his attending to this work, and arrangements were made with Prof. Munson to look after this work. The secretary visited Buffalo the first of June and had the judge's examination made, giving special prominence to the excellent keeping and market qualities of our fruit. Prof. Munson in his article on "Maine Fruit at the Pan-American Exposition," gives a full report of the society's proceedings and the excellent results secured by the exhibition. It is of interest here to note that without a dissenting voice the legislature granted the society \$250 to aid in carrying on this work, while it defeated every attempt to secure aid for other exhibition purposes. The secretary congratulates the society on this mark of confidence on the part of our law makers.

### THE AWARDS AT BUFFALO.

It is a matter of congratulation that the Maine fruit shown by Prof. Munson at the meeting of the American Pomological society held at Buffalo was awarded a bronze medal. As few of these were awarded the fact is deemed worthy of this public mention.

Mr. H. E. Van Deman, judge of fruits at the Pan-American advises the secretary as follows:

"You have two gold medals, one silver medal, twelve bronze medals, three honorable mention as awards for the products shown at the Pan-American Exposition."

#### AWARDS AT THE PARIS EXPOSITION.

In this connection it is a pleasure to call attention to the awards made to Maine fruit at the Paris Exposition in 1900. Early in June I received a letter from the U. S. Commission to the Paris Exposition, to the effect that the Maine State Pomological Society was awarded a "Diploma of Silver Medal" and G. B. Brackett, pomologist, writes, "This is understood to be the final official equivalent of the awards to your society on fresh fruits, exhibited in the several temporary competitions in horticulture held during the course of the exposition and reported to you from time to time as announced by the class jury. It is expected that the diploma will be forwarded by the exposition authorities in due time through the United States commissioner general. Please accept our hearty congratulations on the successful outcome of your fresh fruit exhibit. We also extend our sincere thanks for your co-operation in the preparation of our general fruit exhibit at Paris. The United States received a larger number of awards in this class than any other foreign country, a result largely due to the hearty co-operation of fruit growers in the important producing sections. A 'diploma of gold medal' was awarded to Prof. W. M. Munson as collaborator in the general fruit exhibit of the division of pomology, to which a 'grand prize' was awarded. Prof. Munson was instrumental in securing this exhibit while he was president of the society, and the tribute paid to him was well deserved and a compliment to the pomological society."

#### PUBLIC MEETINGS, ETC.

At the January meeting of the executive committee the following outline of work was presented to cover the year: A Spring meeting, two horticultural classes, a small fruit meeting and the usual annual meeting and exhibition.

The spring meeting was held in Brooks, Friday, March 22. The day preceding the meeting was very rainy, and in conse-

quence the traveling was soft and unfavorable for a large attendance. As it was the morning session was omitted, but the afternoon and evening sessions were well attended and much enjoyed. The exhibition of fruit although not large, was very good and bore evidence of favorable fruit conditions in this part of the State.

As circumstances did not seem favorable horticultural classes were not organized, though I am confident that such efforts would be appreciated by the public. I hope to see something of the sort brought about another year.

The small fruit meeting was held in Rockland, August 1. A good program was presented, after being well advertised, but the attendance and exhibition were not as large as was anticipated. The desirability of holding meetings of this sort is apparent, for only in this way can fresh fruits be offered as object lessons of tillage, flavor and quality of fruit.

Early in the season an invitation came from the grange at Dexter to hold the annual meeting and exhibition of the society in that thriving town. After careful consideration the executive committee accepted the invitation, and all our efforts were directed toward this meeting. A local committee, consisting of A. A. Eastman, Geo. C. Furber, L. W. Jose, F. O. Additon and W. H. Curtis, was chosen to make all necessary local arrangements and to co-operate with the officers of our society. The committee was active throughout and at every point rendered the most valuable service, for which we wish to make this personal acknowledgment. The meeting itself proved to be one of the strongest and most enthusiastic ever held by the society, and reference is here made to the excellent practical papers and discussions there offered to Maine fruit growers. It was enthusiastic from first to last, and was widely reported in the papers of the State. The music was excellent, and the cordiality of the Dexter people seemed to be unlimited.

The exhibit occupied four tables the entire length of the hall, while cross tables in the rear were occupied by the canned goods and pears, and tables across the front were given up to the flowers, and the stage was decorated with well grown plants from the greenhouse of Mr. Chas. H. Hayden of Dexter.

Of the apple exhibit in general it may be said that it was just fine, the fruit being large in size, high colored and very attractive. At every available moment there were crowds around the

tables, and all seemed interested in examining the beautiful display of fruit. The fruit shown by the Experiment Station was much admired, and contained more or less varieties not generally grown in the State. Several of these were Russian varieties, which thrive well at Orono. By courtesy of Mr. H. E. Van Deman some fine specimens of Missouri Ben Davis, York Imperial, Sultan Beauty and Rome Beauty were shown from the Pan-American Exposition. A plate of apples grown by C. D. Tolman, East Dixfield, was shown with the name given by the exporter, who last year sent this variety to Liverpool as the N. Y. Pippin, where it sold for twenty-seven shillings, the highest price received for any Maine fruit sold in that market last year. There were also some fine specimens of the Arctic shown by Mr. O. K. Gerrish of Lakeville, Mass. Among the pears shown by Mr. S. H. Dawes of Harrison was a very good plate of the Idaho. Prof. Powell found many varieties with which he was not familiar, especially several of Maine origin. Selections of these were made and forwarded to the department at Washington, and his report on the merits of the fruit will be awaited with interest.

During the afternoon session of the second day the secretary suggested the propriety of sending a barrel of Maine apples to President Roosevelt. At the close of the meeting a barrel of the choicest fruit was selected, neatly packed and sent forward to the White House with the compliments and best wishes of the society. Shortly after a letter was received, acknowledging the arrival of the fruit, and expressing the thanks of the President for this delicious Maine fruit.

#### MAINE FRUIT IN 1900 AND 1901.

The fruit of 1900 so far as it was placed in the market this year brought good prices. The last shipment to Europe was made from Skowhegan—300 barrels of Ben Davis, which netted the grower \$900. The panic in prices in the fall which caused so many to sell at nominal figures led our executive committee to ask President Gilbert to ascertain and publish the actual condition of the crop of 1901. His bulletin has been published. Buyers in Maine this year sent parties out to estimate the quantity of fruit in certain orchards and based on this estimate offers were made for the lot. In one case the buyer offered \$200 for a lot

and the owner declined to sell at that price. He paid out then for harvesting \$83 and the same man paid him \$500. He thought he sold too soon, and so did I, for 75 barrels of the lot were Kings. Some are still holding their fruit, and it remains to be seen what the price will be. It was not the purpose of the bulletin to tell people when to sell or what they should ask for their fruit; it was rather to advise the fruit growers of the quantity and condition of the crop, leaving them to draw their own conclusions.

Of the crop of 1901 in Maine the early estimates were nearly all wrong. The early indications were unfavorable, as the blossom was irregular and occurred during cold, damp weather—too cold for the bees to work, and there were more or less showers. The season was favorable later on and as the fruit matured every one was surprised at the size of the crop, which was much larger than anticipated and of excellent quality. Apples were never better in Maine than this year, and the buyers from out the State are enthusiastic over the Maine apple, and one of these buyers has purchased a Maine orchard. One farmer tried in vain last year to sell his farm for \$500, and this year he harvested 250 barrels of choice fruit. Another man a few years ago had the courage to buy a farm for a thousand dollars. His friends thought he could never pay for it, but this year he had 300 barrels of fruit. Another young man owned half of the old farm on which he was born and gave his brother \$1500 for the other half. He gathered 600 barrels of as fine apples as ever grew, most of which are in cold storage at this time. These instances teach their own lessons, and there are many more that have come to my knowledge.

Our Buffalo exhibit called the attention of buyers to Maine fruit, and they have come in from all quarters. So great has been the American demand that foreign buyers have not found people so ready to send their fruit abroad. But the result of this is that a large part of the fruit has already been sold at satisfactory prices, while those who are holding their fruit are expecting still better prices. Nor is this all, cider apples and apples for canning have also found a good market. Estimates of the crop place it from 250,000 to 300,000 barrels—probably about 300,000.



Attention is especially called to the papers and discussions presented at our several meetings. They bear upon nearly every feature of practical fruit culture and I bespeak for them the most careful reading and study.

D. H. KNOWLTON.



## OFFICERS FOR 1901.

---

### *President.*

Z. A. GILBERT, North Greene.

### *Vice-Presidents.*

D. P. TRUE, Leeds Center,

C. A. ARNOLD, Arnold.

### *Secretary.*

D. H. KNOWLTON, Farmington.

### TREASURER.

CHARLES S. POPE, Manchester.

### *Executive Committee.*

The President and Secretary, *ex-officio*; John W. True, New Gloucester; R. H. Libbey, Newport; V. P. DeCoster, Buckfield.

### *Trustees.*

Androscoggin county, John Briggs, Turner.

Aroostook county, Edward Tarr, Castle Hill.

Cumberland county, T. M. Merrill, West Gloucester.

Franklin county, F. D. Grover, Bean.

Hancock county, Mrs. S. L. Brimmer, Mariaville.

Kennebec county, E. A. Lapham, Pittston.

Knox county, Alonzo Butler, Union.

Lincoln county, H. J. A. Simmons, Waldoboro.

Oxford county, Lemuel Gurney, Hebron.

Penobscot county, C. A. Arnold, Arnold.

Piscataquis county, H. L. Leland, East Sangerville.

Sagadahoc county, A. P. Ring, Richmond Corner.

Somerset county, F. E. Nowell, Fairfield.

Waldo county, Fred Atwood, Winterport.

Washington county, J. F. Sprague, Charlotte.

York county, C. A. Hooper, Eliot.

### *Member Experiment Station Council.*

CHARLES S. POPE, Manchester.

## MEMBERS OF THE SOCIETY.

---

NOTE.—Any errors or changes of residence should be promptly reported to the Secretary. Members will also confer a favor by furnishing the Secretary with their full Christian names where initials only are given.

### LIFE MEMBERS.

Andrews, A. Emery .....	Gardiner	Harris, N. W. ....	Auburn
Andrews, Charles E. ....	Auburn	Harris, William M. ....	Auburn
Arnold, C. A. ....	Arnold	Harvey, F. L. ....	Orono
Atherton, Wm. P. ....	Hallowell	Hoxie, James S. ....	North Fairfield
Atkins, Charles G. ....	Bucksport	Hoyt, Mrs. Francis. ....	Winthrop
Atwood, Fred .....	Winterport	Jackson, F. A. ....	Winthrop
Averill, David C. ....	Temple	Johnson, Isaac A. ....	Auburn
Bailey, W. G. ....	Freeport	Keene, Charles S. ....	Turner
Bennoch, John E. ....	Orono	Knowlton, D. H. ....	Farmington
Bickford, Lewis I. ....	Dixmont Center	Lapham, E. A. ....	Pittston
Bisbee, George E. ....	Auburn	Litchfield, J. H. ....	Auburn
Blanchard, Mrs. E. M. ....	Lewiston	Litchfield, Mrs. L. K. ....	Winthrop
Boardman, Samuel L. ....	Bangor	Lombard, Thurston M. ....	Auburn
Briggs, John. ....	Turner	Luce, Willis A. ....	South Union
Burr, John .....	Freeport	McLaughlin, Henry .....	Bangor
Butler, Alonzo .....	Union	McMannus, John. ....	Brunswick
Chandler, Mrs. Lucy A. ....	Freeport	Merrill, T. M. ....	West Gloucester
Chase, Henry M., 103 Federal St.,	Portland	Mitchell, Frederick H. ....	Turner
Chase, Martin V. B. ....	Angusta	Moody, Charles H. ....	Turner
Corbett, Herman .....	Farmington	Moore, William G. ....	Monmouth
Crafts, Moses .....	Auburn	Moor, F. A. ....	Waterville
Crowell, John H. ....	Farmington	Morton, J. A. ....	Bethel
Cummings, Mrs. Anthony .....	Auburn	Munson, W. M. ....	Orono
Dana, Woodbury S. ....	Portland	Page, F. W. ....	Angusta
Dawes, S. H. ....	Harrison	Parsons, Howard G. ....	Turner Center
DeRocher, Peter. ....	Bradentown, Fla.	Perley, Chas. I. ....	Cross Hill
Dirwanger, Joseph A. ....	Portland	Pope, Charles S. ....	Manchester
Dnnham, W. W. ....	North Paris	Prince, Edward M. ....	West Farmington
Dyer, Milton. ....	Cape Elizabeth	Pulsifer, D. W. ....	Poland
Emerson, Charles L. ....	South Turner	Purinton, E. F. ....	West Farmington
Farnsworth, B. B. ....	Portland	Richards, John T. ....	Gardiner
Frost, Oscar F. ....	Monmouth	Ricker, A. S. ....	Turner
Gardiner, Robert H. ....	Gardiner	Roak, George M. ....	Auburn
George, C. H. ....	Hebron	Robinson, Henry A. ....	Foxcroft
Gilbert, Z. A. ....	North Greene	* Rolfe, Samuel. ....	Portland
Goddard, Lewis C. ....	Woodfords	Sanborn, Miss G. P. ....	Angusta
Grover, Franklin D. ....	Bean	Sawyer, Andrew S. ....	Cape Elizabeth
Gurney, Lemuel. ....	Hebron	Sawyer, George B. ....	Wiscasset
Hackett, E. C. ....	West Gloucester	Simmons, H. J. A. ....	Waldoboro
Hall, Mrs. H. A. ....	Brewer	Skillings, C. W. ....	North Auburn
Hanscom, John .....	Saco	Smith, Henry S. ....	Monmouth

\* Deceased.

## LIFE MEMBERS—CONCLUDED.

Snow, Mary S.....	Bangor	True, Davis P.....	Leeds Center
Starrett, L. F.....	Warren	True, John W.....	New Gloucester
Stetson, Henry.....	Auburn	Vickery, James.....	Portland
*Stanley, Charles.....	Winthrop	Vickery, John.....	Auburn
Stanley, O. E.....	Winthrop	Wade, Patrick.....	Portland
Stilphen, Asbury C.....	Gardiner	Walker, Charles S.....	Peru
Strout, S. F.....	West Falmouth	Walker, Elmer V.....	Oxford
Taylor, Miss L. L., (Lakeside)	Belgrade	Waterman, Willard H.....	East Auburn
Thomas, William W., Jr.....	Portland	Wheeler, Charles E.....	Chesterville
Thomas, D. S.....	North Auburn	Whitney, Edward K.....	Harrison
Thurston, Edwin.....	West Farmington	*Woodman, George W.....	Portland
Tilton, William S.....	Boston, Mass	Yeaton, Samuel F.....	West Farmington
Townsend, Mrs. B. T.....	Freeport		

## ANNUAL MEMBERS, 1900.

E. W. Wooster.....	Hancock	J. A. Roberts.....	Norway
S. F. Sweetsir.....	New Gloucester	O. N. Cox.....	North Norway
V. P. DeCoster.....	Buckfield	Mrs. Frank G. Noble.....	Norway
J. W. Ricker.....	East Auburn	Mrs. O. B. Upton.....	Norway
F. H. Rollins.....	Farmington Falls	Mrs. J. A. Chadbourne.....	North Bridgton
Mrs. W. S. Marsh.....	Intervale	Herbert M. Tucker.....	South Paris
Mrs. A. S. Carsley.....	New Gloucester	S. D. Edwards.....	Oxford
Mrs. A. C. Chandler.....	New Gloucester	A. C. Day.....	South Turner
Mrs. A. L. Richards.....	New Gloucester	J. W. Dudley.....	Castle Hill
Z. McAllister.....	Lovell	S. L. Merchant.....	Winthrop
Benj. Tucker.....	Norway	L. P. Toothaker.....	Simpson's Corner
Mrs. E. F. Bryant.....	Buckfield	E. Tarr.....	Mapleton
J. W. Bradbury.....	Norway		

## ANNUAL MEMBERS, 1901.

Austin, Alfred.....	Parkman	Leland, H. L.....	East Sangerville
Austin, Chas.....	South Berwick	Leland, Will E.....	Sangerville
Beal, Mrs. Altana.....	North Fairfield	Libbey, R. H.....	Newport
Clark, Chas. H.....	Wells Branch	Libbey, Mrs. R. H.....	Newport
Copeland, Llewellyn.....	Dexter	Litchfield, L. K.....	Winthrop
Davis, Fred.....	Newport	Mathers, Mrs. A. C.....	Rockland
Day, A. C.....	South Turner	Merchant, S. L.....	Winthrop
DeCoster, V. P.....	Buckfield	Munson, W. M.....	Orono
DeCoster, Mrs. V. P.....	Buckfield	Nowell, F. E.....	Fairfield
Dudley, John W.....	Mapleton	Phillips, W. H.....	Hancock Point
Dunn, A. L.....	Buckfield	Plummer, Stanley.....	Dexter
Eastman, A. A.....	Dexter	Roberts, M. W.....	Brooks
Edwards, R. G.....	Brooks	Robinson, O. M.....	Dexter
Emery, Frank E.....	Laramie, Wyoming	Rowe, W. C.....	Brooks
Fogg, Alvan H.....	Rockland	Spear, Mrs. Carus T.....	Rockland
Greenleaf, A. C.....	Farmington	Stoddard, Mrs. Alma S.....	Farmington
Haines, J. W.....	Dexter	Titcomb, B. M.....	Farmington
Hall, Chas. G.....	Cedar Grove	Waterman, L. C.....	Buckfield
Hayden, Chas. H.....	Dexter	Whittier, Phineas.....	Farmington Falls
Johnson, C. F.....	Dexter	Wooster, E. W.....	Hancock
Jose, S. O.....	Dexter		

\* Deceased.

## TREASURER'S REPORT.

Charles S. Pope, Treasurer, in account with Maine State Pomological Society.

### DR.

To cash from treasurer of 1900 .....	\$398 04
interest Farmington National Bank.....	20 00
interest Farmington Water Company. ....	10 00
interest Merchants' Bank, Gardiner.....	6 00
State stipend. ....	1,000 00
appropriation for Pan-American exhibit. ....	250 00
received from annual members .....	41 00
received from life members .....	20 00
	\$1,745 04

### CR.

By paid W. M. Munson, cash paid out in 1900.....	\$3 10
D. H. Knowlton, expenses as Secretary ...	12 36
Maine Farmer, printing.....	3 38
J. W. True, expenses as member of Executive Committee ...	6 77
Miss L. P. Welch, services as stenographer at Norway.....	25 50
R. H. Libbey, expenses as member of Executive Committee.....	17 35
W. H. Allen, expenses at Brooks meeting ..	3 00
V. P. DeCoster, expenses as member of Executive Committee...	8 75
Chas. S. Pope, expenses as Treasurer.....	8 74
premiums awarded at Brooks meeting. .	27 50
board bill and express bill at Brooks meeting.....	12 85
D. H. Knowlton, on account of salary....	25 00
J. W. True, boxes for plates, vases, etc.....	17 50
Knowlton, McLeary & Co., bill printing ...	32 47
M. F. Donohue, board at Rockland meeting.....	12 77
C. S. Pope, sundry expenses as Treasurer .....	9 88
D. H. Knowlton, expenses as Secretary.....	10 40
R. H. Libbey, expenses as member of Executive Committee.....	10 95
D. H. Knowlton, express, trucking, posters, etc., at Rockland...	23 12
W. M. Munson, expenses at Rockland .....	5 52
Miss G. P. Sanborn, expenses at Rockland. ....	4 90
J. W. True, expenses as member of Executive Committee ...	6 30
V. P. DeCoster, expenses as member of Executive Committee...	9 75
R. H. Libbey, expenses as member of Executive Committee.....	7 46
D. H. Knowlton, cash paid at Dexter meeting .....	24 12
Knowlton, McLeary & Co., printing.....	14 23
Mrs. Alonzo Towle, expenses and services at Dexter.....	26 55
J. H. Hale, expenses and services at Dexter meeting ....	41 25
W. M. Munson, expenses at Dexter meeting .....	6 40
G. Harold Powell, expenses, etc., at Dexter meeting.....	39 00
Eastern Gazette, printing posters, etc .....	6 25
A. A. Eastman, cash paid on account of Dexter meeting .....	3 12
American Express Co., charges at Dexter.....	13 95
D. H. Knowlton, services as Secretary.....	50 00

By paid H. M. Gates, board of officers and speakers, winter meeting.....	\$52 50
premiums awarded at Rockland meeting .....	17 75
premiums awarded at Dexter meeting .....	296 25
Miss L. B. Raynes, stenographer at winter meeting.....	30 20
Chas. S. Pope, salary as Treasurer .....	25 00
D. H. Knowlton, balance of salary as Secretary .....	75 00
D. H. Knowlton, traveling expenses, etc., as Secretary .....	4 58
Chas. S. Pope, Pan-American expenses.....	503 32
Z. A. Gilbert, sundry items paid as President. . . . .	3 28
Burleigh & Flynt, engravings, etc .....	3 38
Augusta Trust Co., box rent.....	5 00
V. P. DeCoster, expenses as member of Executive Committee...	2 15
R. H. Libbey, expenses as member of Executive Committee.....	5 72
W. L. Churchill, board of Executive Committee.....	5 35
Smith & Reid, binding Transactions .....	21 25
Maine Farmer Publishing Co., printing bulletins, etc.....	7 25
Chas. S. Pope, expenses as Treasurer.....	18 36
Permanent fund on account of membership of W. M. Munson ...	10 00
Cash in hands of Treasurer.....	121 21
	<hr/>
	\$1,745 04

## GENERAL SUMMARY.

Cash in treasury January 1, 1901 .....	\$432 79
Receipts for the year.....	1,312 25
	<hr/>
	\$1,745 04
Amount paid as per vouchers .....	\$1,623 83
Cash in treasury January 1, 1902 .....	121 21
	<hr/>
	1,745 04

This is to certify that I have examined the foregoing accounts of the treasurer of the State Pomological Society for the year 1901, and find them properly vouched for and correct, with the balance in the hands of the treasurer of one hundred and twenty-one 21-100 dollars.

G. M. TWITCHELL, Auditor.

Augusta, Me., January 17, 1902.

## RESOURCES.

Exhibition outfit consisting of plates, phials, vases, etc .....	\$150 00
Permanent fund.. .....	1,390 00
Cash in treasury. ....	121 21
	<hr/>
	\$1,661 21

## LIABILITIES.

The only liability so far as is known to the officers is \$10 due to the permanent fund, while there is due on deposit interest of permanent fund nearly or quite enough to meet it.

## PERMANENT FUND ACCOUNT, 1901.

DR.	
To stock First National Bank, Farmington .....	\$400 00
Merchants' National Bank, Gardiner .....	100 00
Farmington Water Company.....	100 00
deposit Augusta Safe Deposit and Trust Company .....	790 00
	<hr/>
	\$1,390 00
Due permanent fund .....	10 00
	<hr/>
	\$1,400 00
CR.	
By 141 life members.....	\$1,410 00

## BUSINESS TRANSACTIONS.

---

### MEETINGS OF THE EXECUTIVE COMMITTEE.

AUBURN, January 14, 1901.

*Voted*, To apply \$250 of the funds remaining in the treasury of the society together with such sum as the legislature may grant for the installing and maintaining an exhibition of fruit at the Pan-American Exposition at Buffalo, N. Y.

*Voted*, To instruct Mr. Gilbert to draw up and present to the legislature a resolve, asking for an appropriation of \$250 for the above purpose.

*Voted*, That Mr. Pope be instructed to complete the collection of fruit for the above purpose, not to exceed twenty-five barrels, and forward the same to Buffalo for cold storage at the proper time.

The following outline of work was presented to cover the entire year: A spring meeting—Two horticultural classes—A small fruit meeting—Annual meeting and exhibition.

*Voted*, That the president, the secretary, and Mr. DeCoster be a committee to take into consideration the above outline and elaborate the same for presentation to the full committee.

The secretary presented an invitation from Dexter Grange to hold the annual meeting with them, and another invitation to hold a strawberry meeting with Pleasant Valley Grange, Rockland. Mention was also made of invitations from parties in North Chesterville and North Jay to hold horticultural schools with them.

LEEDS JUNCTION, February 8, 1901.

A severe storm was prevailing and only Messrs. True, Libbey and the Secretary were present.

Reference was made to fruit and other matters pertaining to the Pan-American Exposition, but in the absence of President Gilbert and Treasurer Pope no information was at hand.



*Voted*, To refer all matters referring to the above to the president and secretary, where immediate action may be required, and that they be authorized to apply for necessary space for making the same.

*Voted*, To refer the preparation of programs, location of meetings, dates, etc., to the president and secretary.

BROOKS, March 21-22, 1901.

Report was made that resolve in favor of our society to aid in making an exhibition of fruit at Buffalo had passed.

Mr. Pope reported that he had not yet perfected the supply of fruit for the purpose.

Correspondence was presented from the authorities of the exposition at Buffalo, acknowledging the receipt of application for a space of 100 square feet.

*Voted*, That Mr. Knowlton be employed to install the exhibition of fruit at the Pan-American Exposition, and perfect arrangements for keeping up the same during the exposition, for which the society is to pay him \$2 per day and travel and board; that in case he cannot attend to the same he be authorized to employ a suitable person to do the same.

The secretary reported regarding the horticultural classes proposed, and it was voted that the secretary be empowered to organize one or two classes at such places and times as he may deem best.

March 30, 1901, received from Chas. S. Pope a bond as treasurer of the society.

LEEDS JUNCTION, June 21, 1901.

The secretary made an informal report on the Maine exhibit at the Pan-American Exposition.

*Voted*, To ask the secretary to prepare a statement for the public press concerning the Maine exhibit of fruit at the Pan-American Exposition.

*Voted*, That packers of blueberries be invited to send canned blueberries, at their expense, to be installed by our representatives, the same to apply to any other canned fruits.

*Voted*, That Mr. Pope be instructed and authorized to prepare an exhibition of evaporated apples for the Pan-American exhibition and to forward the same.

*Voted*, That the secretary and W. M. Munson be appointed delegates to attend the biennial meeting of the American Pomological Society at Buffalo, September 12 and 13.

*Voted*, That the secretary be instructed to visit Rockland and arrange for the August meeting.

*Voted*, That the Secretary be authorized to perfect the program and dates and make such announcements as may be necessary for small fruit meeting.

*Voted*, That the president of the society be instructed to put himself in communication with other state societies, in order to report the condition of fruit in the country to the Maine fruit growers.

STATE FAIR GROUNDS, LEWISTON, September 5, 1901.

This meeting was informal, but after discussion it was agreed

That the November or winter meeting of the society be held in Dexter November 6 and 7.

That the president and secretary make up the program and announce the same.

That Prof. Munson be sent to Buffalo to care for our fruit exhibit and represent the society at the American Pomological Society's biennial meeting.

That fruit be sent for this meeting and to keep up our exhibit at Buffalo.

That the proposed field meeting with Wm. P. Atherton be referred to the president and secretary.

DEXTER, November 5, 1901.

All the committee present.

Communication of Elmer V. Walker of Mexico urging that the meetings of the society be held earlier, and the matter was laid upon the table.

Appointed judges on exhibits as follows:

Classes 1, 2, and 3, apples, R. E. McLatchy of Boston and H. L. Leland of East Sangerville.

Class 4, pears, C. A. Arnold, Arnold.

Classes 5 and 6, canned fruits, etc., Mrs. Alonzo Towle, Freedom, N. H.

Classes 7 and 8, plants and flowers, Prof. W. M. Munson, Orono.



*Voted*, That the secretary be instructed to ascertain the cost of an engraved certificate of membership.

AT THE ANNUAL MEETING, November 6 and 7, 1901.

November 6 and 7, 1901, annual winter meeting. Met in Town Hall, Dexter, November 6, at 11 o'clock. The meeting was called to order by President Gilbert. Prayer was offered by Rev. W. A. Gould of Dexter. The program of the meetings was substantially as follows, with more or less discussion of the various topics as presented. Many of the papers and discussions appear in the pages following:

WEDNESDAY, NOVEMBER 6—11 O'CLOCK, A. M.

Address of Welcome,	Prin. W. S. Brown, Dexter
Response,	D. H. Knowlton, Farmington
President's Address,	Z. A. Gilbert, North Greene

*Afternoon.*

Music.

The Care of the Orchard.

The Importance of it,	R. H. Libbey, Newport
Methods of Culture,	V. P. DeCoster, Buckfield
Fertilization,	Chas. S. Pope, Manchester
Results of Culture,	John W. True, New Gloucester

Music.

Maine fruit at the Pan-American Exposition,

Prof. W. M. Munson, Orono

Music.

*Evening.*

Music.

Bees and Insects in Raising Fruit,	F. O. Additon, Dexter
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Music.

Address,	J. H. Hale, South Glastonbury, Conn.
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Music.

## THURSDAY FORENOON—10 O'CLOCK.

Examination of fruit and other exhibits by the judges.

Annual meeting of Society.

Informal reports of Secretary and Treasurer.

Election of officers.

Music.

*Afternoon.*

Music.

The Selling of our Fruits.

*Small Fruits*—How to Find the Market,

How to Prepare Fruit for Market,

J. H. Hale, South Glastonbury, Conn.

*Apples*—How to Gather and Pack them.

To Whom and When to Sell.

The Biggest Price—How to Get it,

G. Harold Powell, Ag'l Dept., Washington, D. C.

Music.

*Evening.*

Music.

Reports of Committees.

The Future of the Maine Apple,

R. E. McLatchy, Boston

Music.

Address—Living for Health,

Mrs. Alonzo Towle, Freedom, N. H.

Music.

The lantern for the use of Mr. Hale and Mr. Powell was furnished by the University of Maine and operated by Dr. C. D. Wood.

Prof. W. M. Munson and C. A. Arnold were appointed a committee on resolutions and their report was accepted as follows:

## REPORT OF THE COMMITTEE ON RESOLUTIONS.

Your committee recognizing the fact that the present meeting has been one of the most successful in the history of the society would express the appreciation of officers and members to all of those who have contributed to its success. Therefore

*Resolved*, That the hearty thanks of the Pomological Society are due to the railroads of the State and to the hotels of Dexter

for substantial reduction of rates, and to the press for liberal notices and full reports of the meeting.

*Resolved*, Further, that special mention be made of the efficient aid of the local committee, the grange, and the citizens of Dexter in making arrangements and providing such a satisfactory hall, and to the musicians who have added so much to the attractiveness of the program.

Respectfully submitted,

C. A. ARNOLD,

W. M. MUNSON,

*Committee.*

At the annual meeting held on the morning of the 7th the following officers were elected for the year 1902, R. H. Libbey and L. K. Litchfield being appointed a committee to receive, assort and count the ballots.

President—Z. A. Gilbert, North Greene.

Vice Presidents—D. P. True, Leeds Center; H. L. Leland, East Sangerville.

Secretary—D. H. Knowlton, Farmington.

Treasurer—Charles S. Pope, Manchester.

Executive Committee—President and secretary, *ex-officio*, R. H. Libbey, Newport; V. P. DeCoster, Buckfield; C. A. Arnold, Arnold.

Trustees—Androscoggin county, A. C. Day, South Turner; Aroostook county, John W. Dudley, Mapleton; Cumberland county, John W. True, New Gloucester; Franklin county, E. F. Purington, Farmington; Hancock county, E. W. Wooster, Hancock; Kennebec county, E. A. Lapham, Pittston; Knox county, Alonzo Butler, Union; Lincoln county, H. J. A. Simmons, Waldoboro; Oxford county, Lemuel Gurney, Hebron; Penobscot county, A. A. Eastman, Dexter; Piscataquis county, W. E. Leland, Sangerville; Sagadahoc county, A. P. Ring, Richmond Corner; Somerset county, F. E. Emery, Skowhegan; Waldo county, Fred Atwood, Winterport; Washington county, D. W. Campbell, Cherryfield; York county, C. A. Hooper, Eliot.

Member of Experiment Station Council—Chas. S. Pope, Manchester.

Orders were drawn on the treasurer, covering the expenses of this meeting and other items, which will be found in the treasurer's report.

LEEDS JUNCTION, December 13, 1901.

Meeting of the executive committee; all present but Mr. True.

All accounts, so far as known, were settled and orders were drawn for the same.

An invitation to hold the next annual meeting in Ellsworth, was received from E. W. Wooster of Hancock. The matter was laid on the table for future action.

A letter was presented from Prof. W. M. Munson regarding his intention of preparing a monograph upon the apples of Maine origin, and asking that it be made a joint production of the society and Experiment Station at the expense of the Station.

*Voted*, That the executive committee approve the suggestion of Prof. Munson to make the proposed monograph a joint production.

The secretary presented a communication from the director general of the Pan-American Exposition regarding the awards made to our society and other Maine Exhibitors, and it was voted that the secretary be instructed to procure two gold plated medals awarded to our society, and also a bronze medal awarded to Chas. S. Pope.

The awards as announced in this communication are as follows:

Diploma of gold medal on its general display of fruit; also collection of market apples.

A diploma of silver medal to the Maine Agricultural Experiment Station on its exhibit of apples.

Diplomas of bronze medals were awarded to the following exhibits from this State:

J. E. Bennoch, Orono, collection of pears; J. E. Bennoch, Orono, collection of apples; J. W. Dudley, Mapleton, display of apples; E. W. Gould, Bean, display of apples; F. D. Grover, Bean, collection of apples; J. W. Libbey, Hartford, display of apples; F. H. Morse, Waterford, display of apples; C. S. Phinney, Standish, display of apples; Chas. S. Pope, Manchester, display of apples; E. F. Purington, Farmington, display of apples; B. M. Titcomb, Farmington, display of apples; G. W. Whitney, Sweden, display of apples.

Diplomas of honorable mention were awarded to:

T. M. Merrill, Sabbathday Lake, display Ben Davis apples; C. F. Fletcher, Augusta, display Yellow Bellflower apples; V. P. DeCoster, Buckfield, display of R. I. Greening apples.

PAPERS AND DISCUSSIONS OFFERED AT THE  
VARIOUS MEETINGS OF THE SOCIETY.

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ANNUAL INVOCATION.

By Rev. W. H. GOULD, Dexter.

Our Father who art in heaven, whose loving kindness is in every right and thoughtful and earnest hope, whose goodness is manifested in the coming together of those who have good purposes in mind and in heart, we ask that thy grace may be manifested in our midst at the beginning of these series of meetings. We come to thee, thanking thee for thy goodness and blessings which have been with us all our days, thanking thee for the reward which comes in the autumn for the toil of hand and for the care of mind and for the devoted purpose of the heart. We would remember that thy blessings come to those who work and wait day by day, and we learn by our experience that our own joy and satisfaction and delight in life increase as we learn to thank and know thee as the one who rewards our toil and our thoughtfulness and all our loving service. And so we find it to be fitting at the beginning of any earnest enterprise, and so at the beginning of these meetings, to bring our thought close to thee, to remember in gratitude how gracious thou hast been to us, how thou hast prospered us in our effort and in all our enterprise, how thou hast brought and given satisfaction and joy and happiness to us.

We thank thee for the peculiar privileges that shall be ours during these meetings. We pray that thou wilt increase happiness to those who renew old acquaintances and old friendships and in the forming of the new; that thy Spirit may be so manifested in kindness and thoughtful consideration and desire to give and to receive, that there shall be great reward in the meeting together.

Do thou bless with thy loving kindness the absent friends, those whom some of us have left in our homes. Be with them; guard them from every danger and all peril and all harm. Preserve thou us and them and all thy people, that as we strive for the better things of life, as we give the work of our hands and the devotion of our minds, that we may accomplish better results, that more of comfort and more of convenience and more of happiness may come into our homes and into our lives; do thou bless our endeavor. Do thou be with these brethren who meet together to exchange their experience and their knowledge. Bless those who give and bless those who receive. Let kindness and mutual regard be manifest in all the meetings.

Hear these our prayers, forgive us, we pray thee, our shortcomings which are too many, and prosper us by the presence of thy Holy Spirit in all our thought and in our speech and what we do and what we are striving to become. We ask it in His Name,—Amen.

### ADDRESS OF WELCOME

By Principal W. S. BROWN, Dexter.

In behalf of the citizens of our town and village, I extend to you a sincere and cordial welcome to our community. You have met here for consultation, discussion and deliberation. You are interested in the development and promotion of an important branch of our agricultural interests.

Though farming always has been, is, and must ever be the basis of the world's industrial activity, yet it has never received the attention it has merited. Most men have followed it more as a fate than a vocation. A youth of today, standing on the threshold of life, confronted by the momentous necessity of choosing his sphere of labor, of taking his place among the millions of competing toilers, too often turns his back on the farm and casts his lot with those who are already congesting the business and professional avenues.

Why does he leave the only field which today is not overcrowded for one where the laborers are many and the harvest small? The answer is not far to seek. There are two reasons.



One is a prevailing notion that farming is a sort of vulgar occupation. No more false or pernicious notion could be conceived. The dignity of farm labor was recognized by the Romans and they gave to it the benefit of the best minds they produced. Rome's greatest poets sang of the beauties of rural life and her historians chronicled the wealth of her rural classes, but all feared when Rome in her hour of need called her soldiers and statesmen from the plow, and they passed away before the approach of a more splendid but far less substantial age.

The second reason, that farming is unremunerative, is true only to the extent that one fails to bring to the management of his agricultural business the same degree of skill that the business man brings to the management of his business interests. Too many farmers leave everything to the seasons and soil, and, acting on the consoling assurance expressed in the old adage that God takes care of the lame and the lazy, see their buildings run down and their farms run out. This class of farmers are those whom we hear forever complaining of the hardness of their lot and the unprofitableness of farming. I retain memories of these men. Their sleds were housed during the summer and fall under the open sky; their wagons were sheltered the same in winter; their mowing machines, rakes and plows were found when needed where they were last used the year before. If, finally, the sled broke down with a load of wood, or the cart with a load of hay, or the mowing machine gave out in the half-mown field, they would invariably curse their luck.

I am no believer in luck. What is termed good luck is the result of good calculation and bad luck is the result of bad calculation. I believe if every farmer should bring to the management of his business that same degree of careful and systematic supervision that characterizes every other branch of industry today, his success would be practically assured. His returns would not of course be large, but the balance would be on the right side of the ledger. There would be no six per cent mortgage to torment his peace and devour his substance. Thousands have grown rich out of his toil and thousands are still growing rich. Too long the wealth he has created has flowed into the pockets of those whose only title rests on nothing firmer than connivance and cunning. He must take his lesson from the events transpiring in the great industrial world about him.

Organization, consultation and co-operation is the slogan of the manufacturer, the mine owner and the railroad magnate. Whether this policy is to prove beneficial or the reverse, it is a condition of the times,—a situation, not a theory.

Education, organization and co-operation are to bring to the farmer his full share of the fruit of his labors. Much along this line has already been done by the Grange and kindred societies like the Maine Pomological Society, but much more remains to be done. I believe it is the province of this society to consider not only what varieties of fruit are the most profitable to cultivate in our State and how best to overcome the many hindrances in the way of fruit raising and fruit growing, but also to consider how fruit raisers are to realize the largest profits from their crops.

Again, I extend to you, one and all, a hearty welcome to the hospitality of our town, and trust that your visit here may result in mutual good, and that when you return to your respective homes you may carry with you pleasant recollections of your visit.

## RESPONSE TO ADDRESS OF WELCOME.

By D. H. KNOWLTON, Farmington.

I can assure you, sir, and the good people of Dexter, that we are exceedingly glad to be with you. We have anticipated rather more this year than usual, because the invitation from the Grange reached us early, so that we have had all the year to think about it and anticipate it, and I can assure you that up to this point we have not been disappointed in our anticipations.

The Maine Pomological Society was organized nearly thirty years ago. It was organized when the industry in the State was in its infancy. Brother Gilbert, who has the honor of presiding over our body at this time, had the earlier honor of being the society's first president, and largely through his efforts the organization was perfected at that time, and during all these years that have intervened he has been one of its warmest friends and wisest counselors. He, perhaps better than many in the State who were interested in fruit culture, could look forward



into the future and see somewhat along the line of possibilities what we have shown to us here today ; and he, I am sure, for I have heard him so state, looks into the future still further and anticipates for Maine fruit and its growers more triumphs than have yet been won.

The industry then was in its infancy. Sometimes I think that it has not outgrown its infancy ; but, at the same time, when I find how many men there are in the State who have benefited by the teachings of the society and the inspiration which they have gained from attending our meetings and reading our transactions, I am sure we can see that we have accomplished much. I regret that we have not accomplished much more, but that we have not accomplished many things is not our fault.

Our Society, and the fruit growers of the State, are faced by important fruit problems today. I don't know why it is, but somehow it seems that every step we advance, the next step is more difficult. It is the plan of the great Creator, I believe, to make us work harder and work better.

But we are doing all we can to meet these problems, and our program for this meeting is shaped so far as possible to meet these questions, these difficulties, where we can not only give you some good lectures by eminent authorities but mutually converse upon these subjects and bring out the difficulties. I know the people of Dexter will be well pleased with the program. We have flattered ourselves that it is an exceedingly good one ; and I anticipate that as one result of our meeting here you will go to your homes much wiser in fruit culture than you are now.

Franklin county is one of the smaller counties in the State, but the fruit growers of the county this year will receive over \$200,000 for their apple crop, and it is the largest item in the way of agricultural products that our county has ever had in any one year.

I can assure you again that we are exceedingly glad to be here. We know we are going to have a good meeting and we hope that your anticipations will not be disappointed.

Now, thanking you still further for your cordial invitation, sir, and realizing, as I have already said, that we shall have a good meeting, I gladly give way to those who are to follow.

## ANNUAL ADDRESS.

HON. Z. A. GILBERT, President.

*Ladies and Gentlemen:* An established custom of this society, handed down from its first organization, makes it incumbent upon me to address you at the opening of this annual convention on such points connected with the work of this society, and related to the industry it was instituted to promote, as may be considered important to its further usefulness.

The work of such an organization can never be completed. As step by step progress is made new conditions arise, new obstacles are met, new enemies encountered. These make new demands upon our intelligence. Study and experiment must ever keep on. New conditions must be fathomed, obstacles in the way must be overcome, enemies must be subdued. Thus will there ever continue to be a demand for such an organization as ours, and always problems in sight calling for solution.

Fruit growers are to be congratulated on the condition of the fruit market the present year. Demand is sharp and prices high. Maine apples of late have been gaining an enviable reputation among both dealers and consumers wherever they have been distributed. The crop of fine Maine apples of last year found a market largely in the South and West. Their superiority was such as to create a sharp demand for more. It was to stimulate this demand, and still further show the merits of the products of Maine orchards that this organization made an exhibit last spring of our late keeping commercial varieties of apples at the Pan-American Exposition at Buffalo. The reputation thus gained and kept up is plainly manifest in the sharp demand and wide call from the same quarter for the crop of Maine apples of the present year. Such facts may well be a source of encouragement to our society in the noble work it has done for the fruit industry of the State, and should be an incentive to further effort along similar lines.

There never was a better outlook for the fruit grower than at the present time. The population of the country, all hungry for fruit, is increasing year by year, and far more rapidly than is our ability to respond to the call for more. Far and wide, among ourselves, our neighbors, other states and other countries,

the demand is for more fruit and that of the highest merit without regard to cost. Business is booming in all directions, people are at work and likely to be for a series of years to come, wages are good and money plenty, and among Americans it is ready to be spent freely.

The only unfortunate feature of the situation the present year with the grower of fruit is that there is not a full crop of fruit with which to meet the wide demand and liberal prices at command. This leads directly to the important question of fruit every year, and the means through which annual bearing may be promoted. I am aware this is an old problem, but in Maine orcharding it is still important. We want not only better fruit, the best, but we want it in the off years. Our fruit is too much a volunteer crop; we want it at command. While it may never be possible to overcome in full damaging conditions of weather, yet I maintain that a compromise, at least, can generally be secured with those climatic conditions that otherwise would result in total failure. Maine orchards are starving, that is, the most of them. A more liberal policy of manuring and of culture is imperative with nearly all our Maine orchards. Our society can do no better service than to dwell upon this one fact until common management is greatly improved in this direction. The means through which our expanding orchards may be fertilized up to the limit of the ability of the trees to respond is the most important problem that confronts Maine fruit growers at the present time.

Fruit growers need inspiration as well as instruction. A knowledge of how to grow fruit is of little avail where there is not first a faith in the business and a confidence that it may be made successful. The great fruit crop of 1896, when there was more fruit grown than consumption called for or the market could handle, gave rise to the question with growers whether the country at large had not already passed the limit of demand with their planting of orchards. Certainly evidence at that time unmistakably showed there was more fruit than market. It is not strange perhaps that confidence in the orchard as a source of profitable revenue was shaken for the time. But since that year every barrel of choice apples produced among us has found a profitable market awaiting it clear down to the present autumn's harvest when purchasers are on the run all through the State

after them at \$3 and upward a barrel before they were placed in storage. I claim it a safe conclusion and believe that events prove that there will always be a paying demand for all the fruit we may grow, save alone the rare occurrence of a full crop in all the fruit growing sections of the country the same year. This may not again occur in a generation, and is too remote a factor to stand in the way for a moment of a still further extension of the business.

There are many other matters connected with the business of fruit growing that may well receive the attention of our society. Our method of disposing of the products of the orchard is without system, order or sense. Cold storage is a matter with which we shall soon be under the necessity of grappling if that time is not already at hand. But it is not my purpose to confuse by rehearsing a multiplicity of duties. Enough has been presented in that direction.

In closing there is one other matter I wish to call attention to, and that is our exhibitions. They must be made attractive. Neatness and order should everywhere abound. We must not become fossilized in forms and methods. The art of showing must be studied by those in charge. The work of other societies conducting similar work should be visited with a view of catching up new ideas. Progress is ever onward. Classification must be modified to meet new demands. There never is a place to stop and stand inactive.

Fellow members, we have everything to encourage us in our work. We have thrown off the necessity of an admission fee at our doors, which so long has stood in the way of a general attendance on our exhibitions. Nor is it longer necessary to join with any other organization to brace us up in our efforts. Our annual proceedings are a record of faithful and efficient effort that we may look back upon with satisfaction and with pride. Let us in our further labors strive to emulate the example thus set before us by those earlier workers.

## THE CARE OF THE ORCHARD.

By R. H. LIBBEY, Newport.

## THE IMPORTANCE OF IT.

The subject that is allotted me is the importance of orchard culture. Now that is but a small part. Had I time to take it from the seed, and carry it through till you roll up the checks or bank bills, I could explain better my way,—but this of mine is only the importance. Now at the swell places, and this seems to be one, the first course is soup. Now the secretary has seen fit to put me on as the soup part, and I represent the soup part of this,—just simply the opening.

The importance of orchard culture is but one thing and that is the commercial value,—nothing more. I have no right to go on and tell how, the manner, the fertilizer to use,—that is not in my part; it is simply the importance. Now the importance of orchard culture is the value that you can get out of it. It used to be different years ago. In my boyhood days, when apples were not as plenty, we cultivated our orchards for fruit for our own use, but that has gone by. Such a change has come about in fruit, it has become so much better, that there is always a plenty of good nice fruit without much cultivation for home use, and now the cultivation is for what we can get out of it. A man in my town who was eighty years old, only a few years ago set an orchard. He didn't think he would live to get any fruit, but he did live to old age and got some fruit from his seedlings, a little more than he had use for at home,—and sold it for twenty-five cents a barrel for cider. He passed away. The property came into his son's hands and I advised his son to graft those trees. He didn't set them in a square as an orchard, but he set them round the fences. Living in a corner he had two sides, and between his field and pasture he had 200 trees of seedlings, seedlings that he got from pummace by the side of the road, and not over and above thrifty but still they lived and did well. The orchard changed hands, the farm changed hands, and the man that is on it now did graft it a few years ago and it has commenced to bear. This year he had about 75 barrels from them; the year before he had 199 trees grafted and about 175 barrels.



He told me a short time ago that he was going to set out a couple of hundred more trees,—that he was getting more out of his orchard than he did off his whole farm. That was the importance of it because he took care of it.

There are two other men that have done similar things. One of them has left his orchard without any cultivation on one side of the fence and the other has cultivated his, and I have noticed the difference. The man who has cultivated his is getting about 200 barrels this year—the other man is getting ten or fifteen. That shows the importance.

Here is another man down in Vassalboro, from two acres of orchard got 358 barrels of winter fruit. He took care of his orchard. Three hundred and fifty-eight barrels from forty-two Baldwin trees, giving an average of a little more than five and a half barrels to the tree. Some of them gave ten. That was the importance. I wrote Mr. Smiley, inquiring something about it, because I was interested in it. He wrote me that he pastured his orchard with sheep,—that there was a large pasture joining and he took pains to yard his sheep every night, or about every night, in that orchard, and that is about all he did to it. And the income,—he said that many of those people there had, and were getting \$300 an acre. He thought there was no other crop like it.

Now that is the importance of orchard culture. That is about all that it is necessary for me to say, that unless you cultivate and take care of your orchard you can't get any income. If you sit on a nail keg in the store and smoke and say farming don't pay it won't pay, but when you get up and go to work and say it must pay and it is going to pay, then it will pay. And it is just so with orchards.

Mr. J. H. Hale said he kept his orchard land constantly stirred, harrowed and plowed and cultivated. This question was asked Mr. Hale: "How many years do you continue this cultivation?"

A. Tell me how long I will live and I will tell you.

Q. Do you remove many crops from the orchard?

A. No, sir, I am growing apples.

Q. What do you put on for a crop?

A. Crimson clover, cow peas, vetches,—mostly clover and cow peas. This question, what other crop do you grow in the orchard,—of course it is admissable in the early days of an

orchard to grow something there, but you never know when to get out, and when you try to handle two crops on the same bit of land you get into trouble. Some of these old fellows here could tell you, if their wives were not here, that in the early days they tried to have two girls, went to see one girl Thursday night and the other Friday night \* \* \* and they made a miserable failure of it. Now fruit tree planting is a good deal like the best girl, she wants nursing and coddling and taking care of right straight along all the way through. Give the orchard the whole use of the land and if you haven't faith enough in your trees and in your business to do that, don't go into that kind of business. You will find the men in this country who are making the greatest success are men of one idea. They are right after that particular crop, that is what they are after and nothing else.

#### METHODS OF FRUIT CULTURE.

E. P. DECOSTER—As you are riding through the country, you will notice that nearly every farmer has adopted some method of fruit culture. Some we notice pasture their orchard to swine and allow them to root the soil to keep it loose and from becoming root bound. While others pasture it to sheep and allow them to keep the grass down and enrich the soil, while others keep their orchards under the plow; while others believe in mulching with meadow hay and even sawdust; and there are many others who have adopted no method, but have simply placed their trees in the ground and trust to the hand of Providence to do the rest. Such persons are as sure to fail in fruit culture as in any occupation they may pursue.

I believe in raising our own fruit trees. I have not fifty trees on my farm but what I have raised from the seed, and it has been a great pleasure to me to watch them and care for them from the time they first broke through the ground to maturity.

I will give you my method of raising my trees. I select a good deep loam soil, and if I want one row of trees I plow a strip of land some six feet wide; if I want two rows, I plow four feet wider, then plow a good furrow in the center, make a good ditch of it, then I fill that partially full of dressing and work it well in with the soil. Upon this sow your seed. I use pumace from a cider mill and cover it about the same as I would corn.

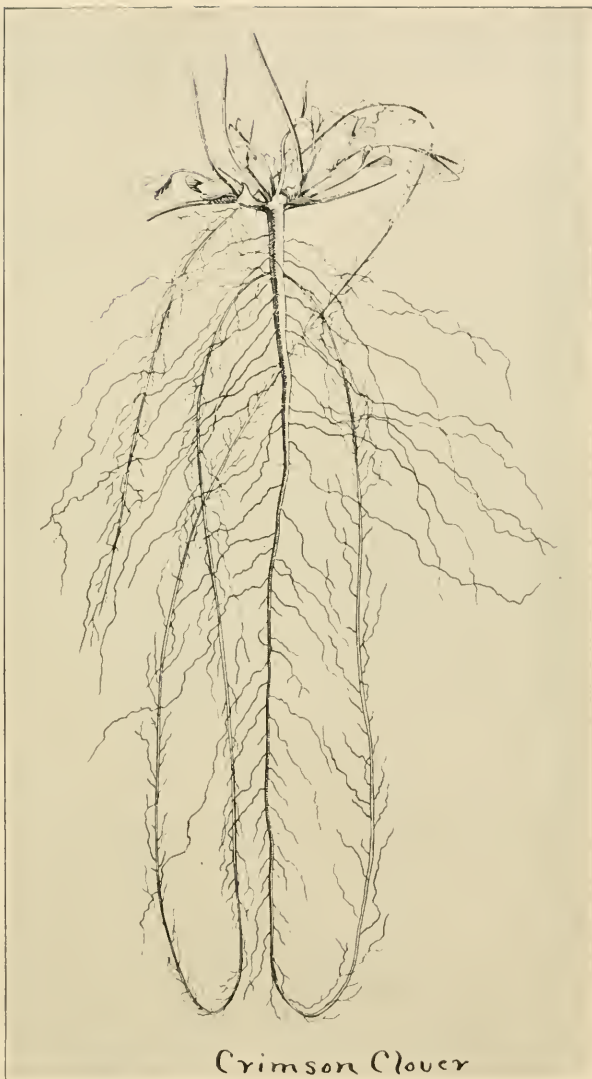
This must be done in the fall as the seed must stay in the ground through the winter. I let these trees grow the first year as they come up, excepting I may trim them some. To keep the snow from breaking them down, drive a stake in the row and tack some boards on each side. The next spring take them all up and set them in a row one foot apart. If these trees are properly held, mulched, and cared for in three or four years from the seed they will do to set out. I prefer to raise them as seedlings and graft in the limb. I believe I can get better shaped trees by so doing and they will come into bearing as soon as those grafted in the nursery. In two years after setting out will do to graft. In grafting trees those scions that are making a large growth I allow the sprouts to grow which will act as a preventive from blowing out. Cut them out the next spring.

*Setting out trees.* Many of us are not particular enough about setting out our orchards. Who is there of you who would expect any return from your corn and potatoes were you simply to plant them in the ground and let them care for themselves. I find the profit and income is commensurate to the care and labor you put into it. No one crop we may raise upon the farm will show good care sooner and profit surer than a fruit tree. I am convinced that two-thirds of the fruit trees that are set upon our farms die from starvation and never pay the first cost of the tree.

As you are traveling through the country you may not ask how a farmer is caring for his fruit trees, a single glance will tell you. If they are pruned, mulched and cared for as they should be, even an experienced eye will tell you the variety of the fruit as you will notice the Baldwin, Greening, Spy, Russet, Ben Davis, Talman's Sweet, etc., all grow their branches in different shape.

*Pruning trees.* We are not paying enough attention to the pruning of our trees. Fruit and not wood is what we are after. You cannot grow good fruit and a surplus of wood. I had an experience with a Beurre d'Anjou pear tree which taught me a lesson. The tree blossomed well every year but the fruit did not set and what did was small and would wither when put into the cellar. I had made up my mind to discard this pear, so grafted one tree and left two good limbs. Those two limbs were loaded with pears and matured well upon the tree. I found





FROM DRAWING SHOWING ROOTS OF CRIMSON CLOVER.

By courtesy of Prof. John Craig, Cornell University.  
See article on Cover Crops for the Orchard, page 57.



the pear was all right and the fault was with me. After trimming the other trees well it had the same result

*Thinning of fruit.* I believe the thinning of fruit is a question we should look into more than we do. Nature perpetuates all fruit by the production of its seeds. It brings just as heavy strain upon the tree to grow and mature the seeds in a small and wormy apple as it does in a good one. I believe by thinning our fruit we will get a better sized, better colored and a better flavored apple. I much prefer one good apple than two poor ones. It can be done at any time after the fruit is well set, the sooner the better. When a tree is allowed to bear so heavily that it takes all of the nourishment from the tree and the tree gets no growth, disease is after that tree, and it takes from one to two years for that tree to get into bearing again. I believe if a tree is properly dressed, pruned and thinned, it will produce fruit every year. The question is often asked when to prune trees. I believe the best time is when you set them out and then do a little every year. How often we hear that father or mother say, give me the training of a child until it is twelve years old and I will characterize his whole life. It is the same with a fruit tree. You can form that tree into any shape you choose. Many are asking what time of the year is the best to prune trees. I make it a rule to prune when I have the time; any time after the leaves fall.

I believe the future prospects are good for fruit growers. Many and many a farmer in Oxford county, this present year, have received as much for their fruit as their farm would be worth outside of their orchard.

Q. At what time and how do you thin fruit? It is not much practiced here.

A. At any time after June, after it gets well started. Did you ever notice, Brother, that an apple that is perfectly clear, not touching anything, that you don't see any coddling worms working on the limb. They always work where limbs come together or leaves touch. I thin any time after June; rainy days in haying is a good time. This year the hot weather in June thinned the fruit quite badly for me, although I raised quite a good average crop.

Q. What time would you prune? You told us not to prune in June.

A. Any time after the leaves fall. I hear some parties advocate trimming in the fall and letting the limbs lie beneath the trees as a preventive to the mice; possibly there is something in that.

#### FERTILIZATION.

CHAS. S. POPE—Our president stated this forenoon that three-fourths or seven-eighths—I have forgotten the fraction—of the trees in the State of Maine were dying of starvation, and there is too much truth in this. And even those which are not dying of starvation are simply existing and giving a crop only when,—well, the school-boy said the hitching-posts were bearing this year—and that is just the year when there is no profit in fruit.

Now, I can remember when Mother Nature was so kindly that all that was necessary was for us to set a good tree in good soil in the pastures where it still retained its fertility from the forests that had not been exhausted. All that was necessary when I was a boy was for us to set a good tree and keep away the insects and we would raise good crops of apples year after year. But as time goes on and the fertility of the soil is exhausted, it now becomes necessary for successful fruit-growing to keep the condition of the soil up more in the condition that it was in fifty or seventy-five years ago. And the soil we don't want simply to maintain that growth, as we could easily in any soil that was fit to raise a crop, but what we wish is to grow fruit in larger quantities and of better quality and every year, so that when fruit is worth something we will have a crop of fruit to sell. What seems to be lacking in our soil now is the lack in the physical condition as much as anything to grow good trees. The soil seems to be hard and dense. It is lacking in vegetable fibre, the humus of the soil; the decaying organic matter that we ought to have there for the successful growth of the tree is lacking. Therefore we must look first to the condition of the soil before we begin to fertilize; have our soil in that condition where the trees can take hold of the fertilizing material before anything else. If we are putting this fertilizer into the soil, we want to put it in in such shape that the trees can get it out and improve on it. Therefore it behooves us not only to add this fertilizing

material but to add it in such a manner and in such a way that the trees will get the benefit of it. For this reason I would not fertilize on the top of the greensward under a tree, in this case because the grass would steal the greater part of it, and we are fertilizing the trees.

My method and what I would recommend would be to keep the orchard under the plow. We are not all situated as Smiley of Vassalboro, or DeCoster, is,—have a large lot of waste pasture land where we can put in a great flock of sheep and let them feed during the day and then drive them up on to the orchard on the top of the hill and yard them in, stealing from this waste land and pasture and bringing it to the orchard. Most people are obliged to fertilize their orchards either with barnyard manure or commercial fertilizers purchased, and to these I say the time has come when we must raise our best fruit and our best trees on cultivated soil as we would any other crop. It is what they are doing all through the western country, through New York State, for years. If we wish to raise fruit when other people have no fruit, get it year after year, get our big crops, put in the plow and keep them cultivated. Begin to plow as soon as the trees are set. Plow lightly; keep the roots below. I would not advise going into your old orchards and putting the plow in deep and tearing the roots to pieces and ruining the trees. If you have an old orchard that requires this, put your plow in and just barely turn the turf; then get your turf rotted and keep it down with the cultivator and harrow. Then whatever is put upon this soil the trees get the full benefit of.

The constituents called for in the tree are the same as for any crop, but perhaps in different proportion. They call for a certain amount of nitrogen to keep the foliage in good thrifty condition, for without this you can have no good fruit nor no good growth of the tree. But too much nitrogen will grow you foliage at the expense of fruit. Potash in large quantity is called for, for 60% I think of the fruit, ash of the fruit, is potash and quite a large per cent. of the tree. A small amount of phosphoric acid, smaller than is needed for some crops; lime; you will find trees growing in a limestone soil make a good thrifty, vigorous growth and ripen their wood early so that they stand our hard winters. Therefore in some of your soils it may be necessary to add a little lime. It is impossible to tell how much of each

one of these constituents may be required in any orchard. What is lacking in the soil must be found out by your own experimenting.

But one thing you cannot expect, to follow the directions I am giving, plowing and harrowing and adding only the commercial fertilizers, the minerals as you buy them in the phosphates, and in this way to keep your ground in good mechanical condition. There is lacking in the soil the humus. Something must be added to keep this soil loose and light. This can be done with cover crops. Nature abhors a bare surface. She is always planting something on a naked soil, and it is much better to raise weeds than it is to keep that soil bare the year round. Therefore, cultivate the first of the season, keep the ground thoroughly mulched with a light dust soil until August or the first of September, then plant some crop that shall leave the fibres through the soil and keep the soil loose and light. In this way you retain the moisture in the soil which is one of the great advantages of keeping your soil loose and light. That is one of the methods of holding the moisture in the soil. The heavy, compact, dense soil dries out very quickly, and the apple tree requires, especially when growing a crop of apples, requires an immense amount of water for a large crop. Therefore never plant a crop in the spring that shall take all through the months of June and July moisture from the soil very much faster than the bare surface itself, but keep it plowed loose and cultivated lightly through the first of the season, keeping the ground full of humus, full of fibres to hold the soil loose and light, to prevent the evaporation of the water, to conserve the moisture through the summer; then when it comes early fall, plant rye, wheat, peas or something of that kind to cover the ground through the fall and winter, and all the little fibrous roots decaying in the soil will keep up the supply of humus and keep it loose and light for the next season to conserve the moisture through the coming year.

One of the best fertilizers for the orchard for this reason, to supply the lack of humus that is in nearly all fertilizers, is stable manure. But in the larger part of stable manure we get more nitrogen than the trees need, therefore making it a very expensive manure, unless we put a very small amount of the stable manure and supplement it with potash and phosphoric acid in mineral form,—ground bone and muriate of potash. Therefore



I would recommend both the stable manure and the potash and ground bone in addition as the cheapest fertilizer that we can apply to the orchard, for in the stable manure we get a good supply of humus to keep the soil in good mechanical condition.

Q. Mr. Pope, a question, please. Does not phosphoric acid enter largely into the composition of fruit, especially the apple?

A. Yes, that you would get in the ground bone which I recommended—potash in a large proportion.

Q. You say that in the ash of the apple there is 60% do you not?

A. Of potash. We have a larger proportion in the apple and in the apple tree of potash than we do when we are growing the cereals and our common farm crops on the average, so that we require in orchard culture a larger proportion of potash than in the ordinary farm crops, and less nitrogen.

Q. Wouldn't you want then, in a fertilizer, quite a large per cent. of phosphoric acid as well as potash?

A. I would have enough to keep the trees in good, healthy, growing condition, which you would get in a small amount of stable manure and ground bone with muriate of potash to make up the lack in potash, to give color to your fruit and firmness. If we were so situated, as some parties are, that we could have our waste land pastured with sheep and bring in the fertilizing material from that part of the farm to the orchard, as Brother DeCoster and Smiley of Vassalboro do, it might be the better way for fertilizing the orchard. We have had perhaps more or less apple orchards where they were too rough to put in the plow, or even where they were quite smooth, where we have let the hogs do the plowing, then spreading on the fertilizer, using the hogs mostly for cultivating and not expecting fertilizing from them but adding to the fertilizer as needed.

Q. In the German potash salts—I think you have used them to a certain extent—what proportion would there be of potash and of phosphoric acid relatively?

A. There would be no phosphoric acid in the potash salts; that is supplied in the ground bone. That is why we mix, using phosphoric acid with the application of ground bone, the surplus potash in muriate of potash, and what nitrogen we get—we get a small per cent. of nitrogen from the ground bone, making up the rest in stable manure.

Q. Then if you use one ton of ground bone, you would use what proportion of muriate of potash?

A. I would use 500 weight of muriate of potash.

Q. Are the German salts a better source of potash than wood ashes?

A. It is no better if you can get the wood ashes, but with us it costs considerably more in the form of hard wood ashes than it would in German salts.

Q. Salts are cheaper?

A. Ashes with us cost too much, twenty-five cents a barrel.

Mr. KNOWLTON: Mr. Pope, I would like to call your attention to this Stevens' circular which has been sent to me for distribution, whether you know anything about these goods or not?

A. I don't. I never have purchased any Canadian hard wood ashes for the reason that I think they are too expensive and I am a little fearful that they may not contain the potash which good hard wood ashes ought to have,—a little fear of adulteration.

Q. Is it advisable to plow in young orchards in the fall of the year?

Mr. POPE: I would not advise plowing in the fall. I wouldn't want to stir up the soil and let the air in about the roots in the fall, but do the plowing in the spring. It is liable to expose more or less roots and let the air in about the roots, and, as you know, a root coming in contact with air and frost is almost sure to be killed. Therefore, plow in the spring.

President GILBERT: Not necessarily kill the tree?

Mr. POPE: No, but kill that root and the better way would be to let the sod remain as a protection until spring and then plow and cultivate in the spring.

Q. I would like to ask the gentleman relative to mulching, what is his opinion of that. Years ago it was advocated very much and late years not so much. I would like to hear what he thinks relative to that.

Mr. POPE: If you have plenty of mulching to cover the ground, or if while your trees are small, if you mulch as far as the roots can possibly extend, and mulch deep enough to kill the sod, that is sufficient. But with most of us, the mulching after a few years does not extend far enough; it is expensive; and there is no mulch any better probably than a light soil that we get from



cultivating. After plowing, cultivate lightly ; put in a cultivator that will not work very deep, and just keep that surface stirred and keep a light dry mulch. You can go to my orchard now, you will find an experiment we are carrying on at the station, where four rows of trees are plowed and cultivated and four rows of trees are mulched. These trees are large enough to bear a barrel of apples,—four or five inches in diameter,—one to two barrels of apples possibly, and without any doubt those roots now extend fifteen feet from the tree or more, and in mulching of course it is impossible to think of mulching more than five or six feet from the tree. It is plainly visible that the trees that are cultivated and the entire surface kept mulched with the loose soil are doing much better than those that are mulched with a good depth of mulching five or six feet from the tree.

Q. You would call the mulch the cheaper method?

A. I call the plowing and cultivating much cheaper unless you have a large amount of waste hay. With us, meadow hay and such mulching as we can get, straw and fine shavings, will cost more, much more than the cultivating, for after once plowing it is but little work to run the harrow through every few weeks.

Q. Then are we to infer that you consider the chief advantage of mulching is keeping down vegetable growth?

A. Keeping the soil loose and light so that you can save the moisture, which is done by a mulch of dry earth as well as by a mulch of meadow hay.

#### RESULTS OF CULTURE.

JOHN W. TRUE—In early times when our country was first settled, all that was necessary to raise all the apples required for family use, was simply to set the trees and they would take care of themselves, eventually becoming, in many cases, very large trees. They were seldom grafted, and *if* grafted, usually to some fairly good cooking apple but the situation of the trees plainly shows that they received no culture.

To-day it is very different ; if an orchard is set, at least in the older parts of the State, it must be cultivated if we expect to obtain good results.

And what are these results?

Without care and culture the trees will go, one by one, to the brush pile, until at the end of five years, when the young orchard well cared for should begin to show signs of fruiting, not one tree in ten will be found worth saving. If they can have two or three years of care and culture they will get rooted, and, with hardy sorts, will cling to life for a number of years, but with steady culture for fifteen years we get a good thrifty tree, with trunks measuring twenty-eight or thirty inches in circumference and paying a profit.

Culture, we should understand, means any method of care that will keep the grass down and the tree growing. It may be by mulching, or by plowing and harrowing.

We had the opportunity, the past season, of seeing some of the results of simply plowing and harrowing, no dressing being used. It was noticeable; as far as the orchard could be seen the large, dark foliage and the more abundant and better fruit plainly told the story.

Another result of culture is that an orchard properly set and cared for will be an even stand of trees. It is seldom that a tree will be lost except by accident or an ice storm, something that we cannot foresee and guard against.

With proper culture the roots run deeper and will spread over the whole ground. We have found them two and one-half feet below the surface, firmly imbedded in solid pin ground fifteen feet from the tree at the end of ten years. With such roots a tree will not be affected by any drouth that we have in this climate, and will hold its fruit much better, in our opinion, than a tree growing in grass with its roots near the surface.

The fruit from a well cultivated orchard, (which should include pruning,) will be far more abundant and will be produced more regularly; it will also be of better size, and if the pruning has been properly attended to it will be of just as good color; and we are all well aware of the fact that it is the well grown fruit that is sought for by the buyers, and will bring the most money, the "Results" that we are all striving for.

Q. I would like to ask Brother True if he has adopted any method to try to kill twitch grass?

A. Some of my orchards I have plowed for fourteen years and now the limbs are getting so near that I cannot get a team in to do very much work and I have been for the last two or three

years almost stuck as to know what to do. Two years ago I put some sheep in one of the orchards for a month or two, long enough to keep the weeds down, and then again last year for about the same length of time, just enough to keep the weeds down—more or less clover came in and very good feed there. And this last spring I cut off some of those under limbs so as to put my team in and we got out the spring tooth harrow and went over it thoroughly; it was in April on gravelly ground, just as soon as the snow was off, to tear it up thoroughly, and again in about two weeks more we went over it again, and then I put in hogs. And it has looked finely. I got more than a hundred bushels of apples out of it. I will say, back of that, in this plowing and cultivating I put on barnyard manure and dressed it very well, and then I put on ashes and from some reason or other it is looking exceptionally well this year and the twitch grass is very nearly all out again. I don't believe in putting in too many hogs. You have got to use your judgment in putting them in, for they won't use any in rooting around the trees. They will take some one tree perhaps and root it to death and neglect other trees. You have got to watch that quite carefully.

## THE SELLING OF OUR FRUIT—HOW TO FIND THE MARKET FOR SMALL FRUITS.

By A. A. EASTMAN, Dexter.

First you must have a good location near a local market and shipping station. In order to succeed in this as in any other business it is absolutely necessary to keep thoroughly up with the times. The picking and gathering of fruit is another important point to know, the proper time and stages of development to gather the fruit according to your market. The small fruits should be picked in the cool part of the day and at once put in a cool place, and not picked when wet with dew or rain, the fruit will soon spoil and be worthless. But if you are close to a local market get out early and pick the fruit with the dew on and have it on the market early as possible. Do not send fruit of poor grades to market, have the small fruit graded by the pickers, as it is hardly possible to assort afterwards, and see that all your fruit is up to an established standard.

Sell these as first-class goods and if you market the seconds mark them as seconds. As to the manner of selling this is a local question. If you are close to a small town sell direct to the consumer, but endeavor to have the man who handles your fruit in touch with you. If you are obliged to ship to a commission merchant get him acquainted with your fruit, go and see him and get acquainted with what he is doing in the markets. Establish confidence between yourself and your dealer and then do nothing to shake that confidence. Just how you will do this will depend upon yourself. While fruits are the most profitable source of revenue from a farm they might in many cases yield double the profit if they were marketed in a proper manner. The trouble with fruit growers in Maine and New England States, is they do not make a business of it as a rule. You do not want to mix farming in with small fruit culture but very little. If a person is farming he wants to raise what small fruit is needed in his family; if he is making a business of small fruit culture he cannot attend to farming and make it pay as a rule. Farmers frequently complain that they fail to get satisfactory prices for their products and find fault with dealers because they will pay no more when in reality the trouble lies with themselves. The sale

of any fruit depends very much on its appearance to the eye. Pick your fruit honestly in a nice clean box or basket, and don't forget to put some large berries in the bottom; the people will find them and give you lots of credit. Always insist on a fair price and back it up by a comparison of value and you will have no trouble in getting and holding your customers. Be firm and courteous under all circumstances; don't get angry if they do. A neat personal appearance is a good stock in trade. Wear a good business suit and keep your shoes blacked and be in condition to approach the wealthy family and make a good impression and never offer customers berries in an old dirty basket. Keep your horse and wagon as neat and attractive as possible. Fruit is or will be what we make it, and thus more than a slight difference in soil. Make pets of your plants and trees with generous and reasonable care born of a wish to succeed. Love your business, make your own record as a fruit grower.

In using berry crates I used to buy old second hand crates at the markets and pay ten cents each for good, bad, indifferent and I had to put out from ten to thirty minutes in labor for repairs and to clean them up for business, and then they were old crates, dirty and poor. I got sick of these, and I have adopted a gift crate that costs very much less; they hold twenty-four quarts and twenty-four pints. The twenty-four quart crates I use in shipping strawberries, currants and gooseberries; the twenty-four pint are used in shipping raspberries; they are very neat and attractive and the fruit sells very much better when they reach the market, the fruit is all there in good condition free from dust or dirt. The question now will be where to find such a market as will best maintain prices, with this comes the problem of transportation which must be taken into account. The individual shipper is at the mercy of the railroad and express companies who without fear, favor, or affection for ten or twelve hours transit take not less than twenty cases out of one hundred of berries for their portion, while the commission man takes ten more. You can see what is left for you to pay for packages, picking and cultivation. The fruit grower has no subsidy to relieve him in protection from the extortionate freight charges. Can the fruit growers of Maine combine in their shipment to secure lower rates? I think they can if they all would combine together.



J. H. HALE—Certainly the subject of the afternoon that is laid out on your program here is one of very great interest and practically covers the whole broad field of commercial pomology, and any one of the subjects which you have here would take a whole afternoon. I haven't given it special thought for this time but there are thoughts upon it which I have rubbed up against in my life on a fruit farm, and I have some fixed ideas upon the subject of small fruit. "How to find the market." The best way to find a market is to produce something that the market wants, and put it up in a way they want it. Simply growing such small fruits as come up, putting the plants and bushes in the ground and giving them indifferent cultivation and indifferent food, and generally indifferent care, consequently getting moderate fruit of moderate size and quality and color and style won't find a market, or at least people won't go very far for that sort of fruit. The first and foundation principle of marketing lies in production. That is the first thing, to produce. But to make a broad, general statement, the wisest way to find a market is to produce something that the people want and to produce it a little better than the other fellow. When you hear laboring men, people of any kind saying they can't get along, and there is no place for them in this world, the trouble is they are not furnishing thoroughly and well what people want. The man who can do a common thing well, or can do it better than anybody else, is the man that is never out of a job, whether he is a hod-carrier or a blacksmith, or a carpenter, or a lawyer, or a preacher, or a doctor. When you hear of a lawyer getting tremendous fees, you may know that that man puts his whole heart and soul into his case and leaves no single little thing undone that he may develop that case to its utmost possibilities along his line. And everybody wants that man. And when the doctor does, and when the preacher does, and when the strawberry grower, small fruit grower does it and leaves no single thing undone to produce a little better fruit than the other fellow in every possible way, why he need not worry about a market,—not a bit. The market will find him, and find him pretty quick too.

After he produces it as well as he knows how, and a little better than anybody else if he can,—and we want everybody to each try and do more than the others—the more rivals we have in the business and the more men that can beat us the better off we are,

it stimulates us to do better all the time and it broadens the consumption—then, further than that, grade your fruit, for it pays. It is more difficult to grade small fruits, for if you are going to grade at all it must be at the time of picking. To take them to the sorting house and attempt to do this is an injurious process to the small fruit. If the small fruits are to be graded, and if you are working for an extremely fancy market it will pay to grade your fruit, some varieties,—it must be done in the picking—you must pick extras into one package, number ones into another, and so on—and it will require paying an extra price to your pickers. You cannot get money unless you spend it. The more you scatter, the more things come back to you. The more you put into a thing the more you get out.

Now this fruit must be graded carefully, and to do it—in fishing for a very fancy market—you have got to pay a higher price than the average for the picking. You want your packages the newest, the cleanest you can get. We used to talk about ventilated packages, for our small fruits, especially. Years ago when I first began to grow strawberries and carry them to market—grew them on a little quarter acre patch—we put them in the little round boxes, perfectly tight, solid box, and put the cover on,—then put them in an old trunk and gave them to the stage driver and he took them to market, and the biggest dollars I ever saw in the world were what that old stage driver brought back from that little lot of strawberries. Then came the ventilated basket, and the ventilated basket and crate was talked about as a revolution in small fruit handling,—it gave them light and air and everything else. And we have drifted so far away that we have got into that ventilated package and we are ruining our fruit with too loose packages, too much air. I go to the grounds and they take me on top of the hill. Right on top of the hill they have got a little tent erected of boards or something else and it keeps the sun off and the air blows through there. They bring their fruit in here and spread it out for the wind to cool it off. But the air going through there all the time is ruining it. The quicker you can get fruit cool from the vine into a tight package the better. Your grocer down here buys some strawberries to-day. He does not sell them and to-morrow they look a little wilted on top and especially alongside of the fresh ones. He holds them until to-morrow afternoon, they have wilted down and look pretty bad

and a customer goes by and won't buy them. What does he do? Just before Mrs. Brown comes round the corner he takes them and puts one basket over the other and turns them upside down and the bottom ones away from the air are bright and she buys them. Very soon the men who get the best market for very high grade fancy fruit are going to put them back into the absolutely tight package, but that means cooling them before they go in there. Don't go out in the heat of the day, or wet of the day, and shut them up there, but get them off the vines and cool and dry them as quick as you can in cold storage if you can have it, or something of the kind, and then put them in a tight package and they will keep. That is another way to find a market. Show them up to the people in the right way, make them attractive.

I can tell you a little incident in my own business. Some years ago, or a good many now, I am not so much of a kid as I look although in some ways I am all right—I went into the city of Hartford one morning with a large load of berries. I sold them and came back and got the second load, thinking I had got practically all. When I came home at noon I found they had picked five bushels more strawberries. What should we do with them? You know that is a tremendous lot of strawberries. I said "I will have to go back into the city with them." As I drove down by my sister's she came out and wanted to see one particular variety. She had a little bunch of roses in her hands and she dropped one in on top of one of those baskets of strawberries. Then a thought struck her and she said "Wait a minute and let me fix these up for you." I let the horse stand and went and got some strawberry leaves at her direction and she came out with a whole handful of roses. If you want a little tasty job, get a girl back of it. She just dressed those five crates of berries with a strawberry leaf and a rose on the top of each of the eight baskets on the top layer. I went to one store and another where I hoped to sell them, and then I went to the leading grocer. He said he had got more than he could sell any way. I said "Come out here, I have got some pretty ones I want to show you." He came out and lifted up the covers and used a great big swear word. He says "Golly, ain't they pretty! What do you ask for them?" "Thirteen cents a quart." He says "I don't want them, but they look so pretty I won't let them go." He bought the whole five



crates and put them out in front of his store, they were pretty and they tempted him and they tempted his customers. When I asked him how he came out on that deal—"First rate, sold them all. I have never had such a big strawberry deal in my life."

Small fruit must be shown to the people and carried to them in the most attractive manner possible to catch their eye first. Then give them a good solid package full to impress them that you are liberal, and then have your package all right from top to bottom, and then just as good quality as it may be, and the market will take care of itself.

We need some sort of advertising. How the advertising shall be done, I don't know. I have a friend over in western Massachusetts starved out in the grocery business, went to growing fruits and getting rich; but he grows fruits better than his neighbors, he packs them better than his neighbors, packs them in a nice package, puts them up attractively all the way through, and then puts a little business card into every package, giving the name of his farm, the principal productions of his farm, the name of that particular variety of fruit, so that the buyers may know what they are eating—if they get something that is good they will want more of it—and across the bottom of that card what does he say? "Price always five cents above the market." Tells them right to their faces that his price is five cents above the average market right along, and yet they come to him every day as fast as he can supply them, and way over in western Massachusetts as far almost away from Boston as you are, yet he has a trade in Boston among the fancy retailers there who buy his fruit and pay him for it in his own station.

#### HOW TO PREPARE FRUIT FOR MARKET.

How to prepare fruit for market—that depends upon the variety. In the first place, prepare it in the production, begin to prepare it for market when you begin to grow it. All these things lead right back into the ground, lead right back into the man or woman that is back of the job. You have got to have a heart and soul in it to begin with. You have got to believe in it yourself, and you have got to love to do it and then do it just as well as you know how.

The other end of it is to go to the market and find out how they want it. Go down and study the various markets. I have

knocked about the United States a great deal in my time, in fact what money I have made the most of it is spent in travelling and going round and seeing what the other fellow was doing,—and I never stop in any large city or town over night but that I am out at market hours in the morning to study the market end of it—in New York two o'clock in the morning, in Chicago five or six, or four or five, and in Boston it is not until six o'clock—and I study the market and see if certain things are selling. Why did I say last night, pack your apples in boxes instead of barrels? Because my observation in the great markets was that a barrel of apples in boxes will sell for 30% more than the same apples in a barrel. I have found that from observation. That is why I recommend it. And I have found that people want certain kinds of fruit in certain kinds of packages and in certain ways, so that in a large measure you have got to conform to the demands of the people.

I know of a prominent grower in a neighboring state who shipped twenty barrels of apples to market, all packed together, good, bad and indifferent. They were not very badly faced on the top or bottom, but nevertheless they were a mixed up lot. When they got to market the best offer the commission man could get for them was \$1.50 a barrel, but the apples were worth more than that. He wouldn't sell them to outsiders at that and he bought them in himself. He had a little leisure—those apples were bought in at \$1.50 a barrel, twenty barrels, and they were resorted so that he got some eight or ten—I did have the exact figures—he got about eight barrels extra good apples which he finally sold for \$3 a barrel; six barrels of good No. one, at \$2.25, a shrinkage of one barrel, and the rest No. threes which he sold for \$1 a barrel. He made about 30% on that lot of apples by putting a little common business honesty into the barrel along with the apples. Just as mean and dishonest as you may be at heart, the meanest old money grabber on the top of the ground—if you want to make money, be honest. If you want to make money in the fruit business, be honest all the way through every single package and in every detail. Be honest with the soil. Be honest with the tree and the plant. Be honest with the fruit in its handling all the way through, and then be honest with the customer at the other end of the line—because it will pay in dollars and





FROM DRAWING SHOWING ROOTS OF HAIRY VETCH.

By courtesy of Prof. John Craig, Cornell University.  
See article on Cover Crops for the Orchard, page 57.

cents if you want to measure it by that low, miserable standard of dollars and cents. Put it on that ground, it will pay you better than any other policy.

## PACKAGE FOR APPLES.

Question. What is the best box for apples?

Mr. HALE: The best we know of yet is a box just about 22 inches long and about 10 inches deep, and  $10\frac{1}{2}$  or 11 inches wide.

Mr. KNOWLTON: About like the Canadian box?

[The Canadian box is made of  $\frac{3}{8}$  lumber and its dimensions are  $10\frac{1}{2} \times 11\frac{1}{2} \times 21\frac{1}{2}$  outside—cover and bottom narrower to admit of ventilation.—Secretary.]

Mr. HALE: Well, I think the Canadian box, if I remember right, is a little wider than that. You want a box with not too great a surface on the top for the heading, and ten or eleven inches seems to be enough. You want it pretty nearly equal depth and width so that in the cooling off process there wont be any long ways to the center from any point.

Mr. KNOWLTON: Do you have the box made open?

Mr. HALE: No, sir. Tight box,  $\frac{3}{4}$  inch material on the ends, about  $\frac{1}{4}$  inch veneering for the sides, bottom and top. I think it would be an advantage to make these boxes with a little thicker sides. The veneering sides spring a little and are apt to crush the apples; if the corner of one box strikes the flat side of another there will be some spring and bruising of the apple. While the apple boxes that have already been made are about  $\frac{1}{4}$  inch material on the sides and bottom, and it will cost a little more to make one with  $\frac{1}{2}$  inch material, I think our best apples will carry better in a box with a little thicker sides.

Q. Do you recommend wrapping apples in tissue paper?

A. I would recommend wrapping in some sort of paper, I am not sure yet whether tissue or paraffine paper or something of that sort. What you want is to keep the apple away from the air. The apples will shrink. They will shrink in cold storage. I was talking with a gentleman yesterday on the question of cold storage, and as I told him, when I was a kid and used to go with the boys all round the neighborhood into every cellar to get apples, we always found the best and finest in the cellars that had wet bottoms, the damp, old cellars. We have

been talking about a dry cellar as the proper place for apples, it has been advocated in our agricultural papers, but give me the wet one and I will keep an apple longer and brighter every time. So of cold storage, it is a question, I think, of which we know actually very little at the present time, They merely get a good cold room and put stuff in there and it will keep pretty well, but I think our cold storage rooms want to have some plan of retaining the moisture. If I had apples to store today in the average cold storage house in barrels, I should arrange to sprinkle those barrels twice a week as long as I kept the apples there. I would take my chances on their coming out better than any other apples in that storage house that looked equally well when they went in.

Q. Those boxes you spoke of will hold about half a bushel?

A. Made to hold just a bushel, 50 lbs. of apples.

Q. Most of them hold a little less than a bushel.

A. They are intended to hold a full bushel of apples, the California box is, and the Colorado box. We want a standard American box and a standard of grading. You want a standard that is made and maintained by your Pomological Society, so that when an officer of your society is willing to put his stamp on a barrel it may be known all over the world, it may mean something.

By G. HAROLD POWELL, Agricultural Department, Washington.

I desire to add a few words in regard to the box as a package for the finer grades of apples. I have recently been in the land of the "big red apple" in Missouri and Kansas, and I found several growers, especially among the younger men, adopting the box for the better apples such as the Grimes and the Jonathan. Their box is much like the Colorado box of the dimensions given by Mr. Hale. They are made of white wood and are the most attractive and best formed box for the purpose I have seen. They cost about 10½ cents knocked down by the thousand. The top and bottom of the box bulge out when the cover is put on, but the boxes are stored on their sides so that no pressure comes on the bulge. The tops and bottoms and each side were made of one solid piece each rendering the package very attractive.

Apples need to be packed very tight in the box or they shake around in transit and bruise badly. I found one young man



lining the boxes with a light tinted paper which set the fruit off effectively.

The ideal box is about as wide as it is deep and about twice as long as wide. A flat broad box shows the fruit off advantageously but it is objectionable in that too many fruits are bruised in putting on the cover. I have had some experience this year in the cold storage work of the Department of Agriculture with a pear box used in western New York. This box is made of  $\frac{7}{8}$  inch stuff for the ends and  $\frac{3}{8}$  inch for the sides and tops. It is 17 inches long, 16 inches wide, and 7 inches deep. I found this box very objectionable. It is too shallow to take three layers of good size apples or pears and there is too much fruit surface exposed for bruising when the head is nailed on. I had to fill these boxes from the narrow sides.

The box used in Missouri holds a full bushel, while this New York box holds but seven-eighths of a bushel.

The Californians are using boxes extensively for their apples. Only last year the Pajaro valley shipped 1,000 cars of apples, of which 220 cars of Yellow Newtowns were sent to Europe. The box is the coming package for the finer apples and I would advise the Maine apple growers to give the matter serious attention.

One word about fruit wrappers. I had occasion to examine a lot of LeConte and Duchess pears in cold storage the day I left Washington. Part of the fruit of each variety was wrapped in a thin tissue paper, and an equal part was left unwrapped. The fruit had been in storage more than a month, having been picked and stored at the same time. The difference between the wrapped and unwrapped fruit was striking. The wrapped fruit was hard and bright, the unwrapped showed a distinct shrinkage, the fruit was not firm, and it had lost its bright glossy appearance. While we are not now prepared to say very much about the practice of wrapping, it looks as though it paid well to wrap the finest kinds of fruit either for the immediate market or for cold storage. (Figures were here given to show the value of wrapped Bartletts in comparison with unwrapped Bartletts in the London market. The wrapped fruit whether in barrels, boxes, or half boxes sold considerably above the unwrapped Bartletts.) The Department of Agriculture has this question under experimental study this year. It is using tissue, parch-

ment, parafine and newspaper wrappers in the experiments with both pears and apples.

#### TO WHOM AND WHEN TO SELL.

Sell to the fellow that wants them and when he wants them always. That is a good business rule to sell to the man who wants to buy real bad. After all, farmers, fruit-growers, the New England farmer particularly, is by force of circumstances a laborer, a business man and a capitalist combined in one. Nine times out of ten he forgets that he is anything else but a laborer. Nine times out of ten this laborer, this business man and this capitalist works so hard earning his little \$1.25 or \$1.50 a day that he forgets all about his capital he has got that needs looking after, and he forgets all about his business interests which need looking after, to guide his labor and to guide his capital that they may both give the greatest returns, and he does not look far enough out into the world about his market interests or the selling of his product. So that question of to whom to sell and when to sell is the business one, a knowledge of what other people are doing. Your society did a grand thing this year in getting out this little circular about your apples—the best money you ever spent for your society if your growers took advantage of it. The grower should be constantly on the alert to know what the other fellows are doing, what they are planting, how they are caring for it, what sort of production, where they aim to sell, why they succeed and why they fail, all these things. He should give constant attention to what is going on on the outside. Of course the man with a dozen apple trees, fifty or a hundred can't spend a thousand dollars travelling round the United States, but he can get in touch with other men in different sections of the United States, keeping in close touch with the Pomological Division of the Agricultural Department at Washington. They will freely answer your questions. And keep in touch with the secretaries or the live men, members of the different horticultural and pomological societies. If the secretary himself hasn't time to correspond with you, say, who is there in this society that keeps his eyes open and is willing to talk a little? You can find in every state in this Union commission men. They know where all the apples and peaches are long before they are ripe. They



know the condition of the fruit crop all over the country, because it is their bread and butter, but it is bread and butter and pie to the grower if they only knew it and what Yankee don't want pie? A dead one is all the one I know. And so it comes that we need a knowledge of our business, and when we get that knowledge we shall know each for himself whom to sell to and when to sell. But we can't have any general rule that we will all sell to Boston and that we will all sell on the 17th day of November,—not at all. We want the knowledge of marketing conditions, and productive conditions, and climatic conditions, and then apply that knowledge each for himself and to himself and by himself, or through an organization if you will, but in a general way we need all that in our head. That is where the money is made in your business. That is where the success comes in your business. Main strength and awkwardness is at very low premium everywhere. Brains, intelligent brains that may be well directed in any business are worth money, and they are worth just as much in agriculture and just as much in horticulture as anywhere else. I believe myself, as one who was born on a New England farm, and has lived all his life on a New England farm, that the business of agriculture today rightly managed in New England will pay better dividends than any other business in New England today.

And I say to you now, and I say particularly to you fathers and mothers who have got boys coming up, if you will impress upon them what there is lying locked up in the good old soil of Maine today, and show them the opportunities of New England agriculture, show them the opportunities that may come to them through these societies and through the work of the Grange, and through your agricultural press and through your college over here at Orono and your Experiment Station, they need not go to New York, Boston, or any of the large cities to make a living, they can stay right here on the farm. And a man can get a lot of fun that he can't get anywhere else, the enjoyment that comes from working with trees and plants and the soil and with Mother Nature, providing your mind is open to receive it. I know some people don't see that. They don't get the pleasure out of it, the glorious enjoyment of working with these beautiful pictures on this table, and the trees that grow them, and the little plants that grow out of the soil. All that has a wonderful joy in it if we are

big enough and broad enough and deep enough to hold it all. We shut our eyes to too many things, we farmers who live in the country.

#### THE BIGGEST PRICE—HOW TO GET IT.

In a communication to the secretary Messrs. Hall and Cole, well known commission merchants of Boston, write some trite suggestions that should be carefully read by Maine fruit growers :

"Of course we have a pretty thorough knowledge of our end of it, and referring to your question, 'The biggest price—How to get it?' would state, that one who has nice apples, handles them through all the stages of harvesting and packing, in a faithful manner, sorts well, and 'faces' so that when a barrel is opened, the face is an indication of the balance of the barrel, not all large, or all small, but a sample of its contents, who faithfully packs nothing but hand picked fruit, and does not allow himself to put in a barrel a 'drop' apple, even if it is the best one on the tree, fills barrels solid, so that they will arrive at market in like condition ; and can be depended on to do this, is the grower who gets 'the biggest price.'

"We have growers on our list, who have placed their goods in our hands for forty years, or more, who always do as we have stated above, and we have a trade that buys these apples year after year, and does not ask to have a barrel opened—*they know the goods.*

"We know many growers, who are faithful in every detail of handling their apples, but might mention Mr. Phineas Whittier of Chesterville, and Mr. Charles S. Phinney of Standish, who know how to do it, or have it done.

"A word to growers, who send their goods to market in small lots. To meet with the best results, each barrel should be marked as to what it contains, variety, and quality, and in case shipping stencil has not been furnished, name of shipper appear on each barrel, and in shipping, advice of shipment should be mailed at once.

"This is important. It is surprising how many neglect the whole or some part of this advice. Perhaps one-third do not advice of shipment, fifteen per cent do not state a thing on the barrels, but name of consignee. Perhaps someone makes a ship-

ment of five barrels, and nine others do the same, from as many different places; they reach Boston; unloaded, and mixed together; come to market; buyers ready to purchase; but just what is at hand to sell cannot be determined, only by opening each barrel, and that is impossible. Result—some of the goods may not have full justice done them, but if attention was paid to the advice, there would be no mishap.”

## COVER CROPS FOR THE ORCHARD.

By G. HAROLD POWELL, Washington.

Illustrated by Stereoptican Views.

One of the finest features of the pomological meeting is the large attendance of the ladies and in the evening session of the boys and girls. I am delighted to see the gallery crowded with young people. In a few years they will be occupying your places on the main floor and no effort on your part to encourage their sympathy with rural life and its manifold activities now can be too great. I heartily wish that I had not committed myself to a subject for this evening. I would consider it a privilege to address my remarks wholly to the younger people and to endeavor to stimulate their interest in the different forms of nature around them. Apples and peaches and pears and plums and soil management are all right, but the best fruits of the Maine farm are the children that grow there.

In the older sections of the country where crop rotations have succeeded each other generation after generation or where similar crops have been under intensive cultivation for a long continued time, there is a constant diminution of the vegetable matter of the soil. The orchard soil that is tilled once or more a week for several years, and in which no provision is made for replacing the vegetable matter that burns out, grows heavier and “deader,” with smaller water holding and less productive capacity. Good tillage wisely guarded increases the productivity of orchard lands, but intensive tillage has its accumulating effect for evil unless its operations are thoroughly understood.

It may be well at this point to briefly review the primary objects of orchard tillage.

First, it makes the soil fine and loose and favorable for the growth of roots. A crop cannot grow on a stone wall nor on a bank of stiff clay, yet either may contain as much mineral food as a rich garden loam. The soil must be fine, and open, for the highest development of plants.

Second, it acts as a dressing of fertilizer, as it helps liberate the unavailable plant food. I imagine that every acre of land in Maine is rich in potential plant food which only needs to be awakened for the use of the plants growing on it. An acre of soil may contain from 5,000 to 30,000 pounds of potash, and from 2,000 to 8,000 pounds of phosphoric acid in the first foot, and I imagine that there is not an acre of Maine soil that will not exceed the minimum figures in its native fertility. Exhausted soils! Where are they? Abandoned farms whose fertility has been exhausted! Their plant food is only locked up and the key thrown in the well by those who have abused them. They need working. They need vegetable matter and a rational system of agriculture that does not burn them out.

Tillage then helps liberate plant food, putting the soil in condition so that the chemical activities and the biological activities within it can progress more rapidly. One of the most emphatic problems in modern agriculture is how to get these stores of plant food out of the soil, rather than how to buy them in the form of commercial fertilizers.

Third, it acts as a continuous gentle irrigation in that it prevents evaporation. Tillage prevents evaporation by making the surface layer coarser than the underlying ones, putting the soil in condition so that the chemical activities and the biological surface layer coarser than the underlying ones. The water rises by capillary attraction until it reaches this coarse layer of soil where it is held, and a rational system of tillage is one that continuously preserves this soil mulch.

And fourth, it kills weeds. This last function has been the principal reason for a large part of the tillage of the past. Blessed be weeds!

Soils are made up of a number of mineral elements formed by the disintegration of rock and of organic materials such as leaves and sticks and stubble and the roots of plants. This organic matter is essential to a fertile soil but its content is constantly reduced by long continued cropping and cultivation unless some

means is provided for maintaining the supply. Soils that are lacking in vegetable matter are burned out and dead. They are inactive. They hold a small amount of water, and they lose that quickly. I desire therefore to impress upon you the need of supplying vegetable matter to your orchard lands, and that brings us to a discussion of the subject of orchard cover crops. A cover crop, as the term is understood in horticultural language, is one that is sown in the orchard after the trees have made their annual growth and is allowed to remain there until the land is plowed the following spring. The cover crop has several distinct offices to perform besides supplying vegetable matter to the soil, and to these functions I desire briefly to refer. The cover crop idea for orchards is distinctly a modern one and has grown up since the intensive cultivation of orchards has come into prominence.

The most expensive and the most illusive element of plant food is nitrogen. In the condition in which plants use it it melts away like sugar or salt. Growing plants take it up and use it in their growth, and on soils that are barren of plant life, the nitrogen is lost in drainage water. The greatest loss of nitrogen occurs through the fall and winter months, and a distinct function of the cover crop is to take up the available nitrogen at that period of the year, and to hold it for the future use of the orchard. The cover crop also takes up other available plant food during the fall and thereby assists in checking the growth of the fruit trees which harden down or ripen their fruit buds more satisfactorily. This latter point is one that cannot be too strongly emphasized in the colder fruit growing sections of the country.

The cover crop keeps the soil open so that the fall and winter rains, instead of running off into the streams, sink slowly into the ground, and, by its mechanical action, it prevents the washing and compacting of the soil.

If the cover crop is one that lives over winter it pumps out the water of the soil in the spring sometimes hastening the period when the land can be plowed from one to two weeks. I desire to emphasize this water exhausting power of the cover crop in the early spring, for sometimes when the succeeding months are dry, the early growth of the cover crop may have wrought a serious injury to the future orchard crop. Have seen both corn and tomatoes that were a partial failure after following a heavy growth of crimson clover that had pumped out tons of water in



its spring growth. I am firmly convinced that the practice of allowing cover crops to make a large growth in the spring before they are plowed under is a serious mistake. I base this conviction, first, on the fact that a fruit tree should be forced into rapid growth early in the season so that it may largely complete its growth in the north by the first to the middle of July and have a long fall for ripening its buds, and, second, because a rapid, early growth and a slower growth in late summer is more conducive to the formation of fruit buds than a growth that is rapid when the fruit buds are beginning to form, and, third, because every effort should be made as early as it is practicable to plow the land to conserve the moisture that has accumulated during the winter months.

I would call your attention to the following figures given by King. (The Soil, p. 191.) On May 13, the moisture was determined in a soil just planted to corn and in an adjacent clover field, the samples being taken within two rods of each other.

	1-6 in. Per cent.	12-18 in. Per cent.	18-24 in. Per cent.
Corn ground .....	23.33	19.13	16.85
Clover ground .....	9.59	14.75	13.75
Difference .....	13.74	4.38	3.10

These figures illustrate the evil effect of allowing a crop to grow too late in the spring when the ground is to be used for a subsequent crop.

And now we come to one of the most important offices of the cover crop. It supplies the soil with vegetable matter when it is plowed under. I have already stated some of the relations of vegetable matter to crop production, but the subject is of sufficient importance to justify a repetition. Humus or vegetable matter gives a soil a greater water holding capacity, and it accelerates its chemical and biological activities. Of this latter point I desire to speak briefly. The decomposition of the mineral matter of the soil and the decay of its vegetable matter is caused directly or indirectly by millions of little organisms called bacteria living within it. A mass of soil is not a dead inert body. It is a storehouse of the most wonderful living activity. The bacteria within it thrive and multiply and perform their work only under the most favorable conditions. Plant food is made available through them. Air and light and moisture are essen-

tial to their life, and if we should follow the problem to its ultimate analysis the most desirable system of land management is that which provides the most desirable conditions for the multiplication of soil bacteria. I wish to state several propositions that bear upon our orchard work, regretting that there is not more time to discuss them. First, in cultivated soils the number of bacteria is larger in well cultivated soils than in uncultivated soils; second, the number of bacteria increases with the amount of organic matter or humus in the soil, and, third, an increase in the number of bacteria means an increase in the available supply of plant food.

We have said that the cover crop increases the water holding capacity of the soil. It makes it sponge like. The statement is probably conservative when I state that fruit crops suffer oftener from dry weather than from lack of plant food. There is probably not a fruit grower in the room whose apples or other fruit crops have not been reduced in volume by dry weather. Yet if the soil had been prepared to hold a large amount of water, and if the winter rains and snow had been conserved by judicious tillage, it is probable that, in nine years out of ten, a fruit crop could be kept in a vigorous growing condition in the driest times. It has been well said by Bailey that the people in the driest sections of the country suffer least from drought. They catch all the water they can, and then hold it in the soil.

To illustrate the effect of turning under three cover crops on the water retaining capacity of a soil in a dry spell the following figures are taken from moisture analyses made by Cornell University:

Soil in which three crops clover had been turned under had 15% of moisture in July. An adjoining soil with no crops turned under had 8.75%, and lastly, the cover crop, especially if a leguminous one, furnishes nitrogen to the soil, through the bacteria that live on the roots of the plants. The time will not allow us to discuss this phase of the question further than to say that every pound of nitrogen used in the ordinary fruit growing operations can be supplied free of charge by leguminous crops, turned under, in the form of cover crops.

There are two general kinds of orchard cover crops, first, leguminous crops or those that can make use of the free atmospheric nitrogen through the bacteria on the roots of the plants.



This class includes the beans, peas, vetches, and clovers; and second, non-leguminous plants, such as oats, rye, buckwheat, rape, turnips, and salt bushes.

These crops may be sub-divided further into two kinds, first, those that die after a few fall frosts like the beans and peas, and second, those that pass the winter and begin to grow in the spring like the clover and hairy vetch.

(Mr. Powell then illustrated a large number of cover crops by lantern slides discussing the merits and demerits of each one. The crops he thought best adapted to Maine were the cow peas and soy beans for the coarser lands and following them the hairy and spring vetches, alfalfa and crimson clover. The cow pea, soy bean and vetches are especially valuable on land that has not previously been sown in cover crops, while the crimson clover and alfalfa are at the top of the golden chain of cover crops and require the finest preparation of the soil.

Of the non-leguminous crops rye, rape and cow horn turnip were strongly recommended. The speaker also discussed the advantage of mixing several cover crops together like crimson clover and cow peas, clover and vetch, or clover and turnips. The coarser crops shades the clover which usually makes a strong growth during the late fall months.)

## FRUIT AND FRUIT CULTURE.

By J. H. HALE, South Glastonbury, Ct.

I have not come here with any fixed lecture in mind, with any prepared talk, but just as one fruit grower to another I will talk to you a little while on some of the subjects that interest us all. The first one is this question of fruit that is here before us, and did you ever think that of all the choice food products that God has given man, that come to us from the farm, fruit is the only one that comes to us ready finished as palatable and wholesome food without any other manipulation or preparation? It is in its best possible condition, and no amount of cooking, no amount of witchery of any sort that the housewife can put upon it can improve it. Now all of our other food products have to go through some cooking process, some butchering process, some more or less great amount of work before they are fit for food of men, but here is one good product that is ready without any such expense, and that is an item to be thought of; and while fruit a few years ago was considered a luxury, people are finding that fruit is one of the staple articles of food the country over, and people are using fruit three times a day upon the table and a dozen times a day between meals if they can get it, and are saving a great expense and a great amount of work, and above all are adding to their health. This idea has been caught on to by men who are interested in fruit culture, men who must make a living out of something, and the planting of fruit in the United States of America to-day is something enormous. In my own fruit growing industries both north and south I have had to look into the fruit growing of other sections of this great United States, and it is astonishing the rapidity with which acres and acres, and hundreds and thousands are being planted in every section of our country. A few years ago Delaware and a little section of Michigan were considered the only peach regions in the United States and now Connecticut, my little state of Connecticut, grows more peaches than Delaware. Peaches are now practically grown in every state in the Union and immense tracts are being planted in Georgia, Alabama, Texas and Missouri. I know of one concern that is to plant out more than 2,000 acres in Texas this coming

winter. And so it goes over into Missouri, and parts of Kansas and Nebraska, Colorado and over on to the Pacific coast, apple orchards are being planted in similar way. In the Ozark region of Missouri, sections of southern Iowa, eastern Kansas, Nebraska, Colorado and New Mexico, and up in Oregon and Washington and Idaho, besides California, they are planting apples by the twenty and the fifty and the 200 and the 500 and the 1,000 acres. Grapes and plums and pears are being planted in proportionately large areas.

When I go about visiting the people who own large orchards in the central west and the far west and the far southwest and the south and meet the owners of some of these large plantations, and they show me about, show me their packing house facilities for shipping, their cold storage and the way they handle their crates and packages and all that sort of thing, the first question comes, where are you going to market this fruit? And while they expect to market a portion of it locally, or in near by states, the general agreement is that all of the fancy and thoroughly first-class fruit is to be shipped north and east, which means east of the Mississippi river and north of Mason's and Dixon's line. A little further questioning develops the fact that for their very choicest markets they are looking to the northeast corner of the United States, New York and New England, close where your farm and mine are located. What is the matter with you and me that we are not planting more orchard fruits to supply these markets right at our door? If these people five hundred and a thousand and two thousand miles away can invest their capital and their energy in producing these fruits in large quantities and expect to make dividends on it after they have paid one, two, three or four hundred dollars a car to get it into the very markets where your farm and mine are located, is there not something in it or more than something in it for you and me who are here on the ground and can leave our fruit on the tree, plant or vine until it comes to almost perfect maturity? It seems to me so. It seems to me that we are lacking in something, that we have not fully awakened to the opportunities that are before us.

We land owners who live right close to these markets and take no interest in these great questions of fruit industry, and fruit marketing and fruit supply, are dead to our interests, and we need waking up and a most thorough waking up. Why for

years the people in the west, every railroad in the west has been waking up to this proposition. You who have been to Kansas City will remember the sign right across the way from the big railroad station, at night lighted up with electric lights, which reads: "Come to the land of the Ozark, the land of the big red apple." It has been advertised in magazines in this country and in foreign countries "Come to the land of the Ozark, the land of the big red apple," and you people of Maine have kept still when you might have hollered a great deal louder, "The State of Maine, the land of the big and the good red apple." What is the matter that you have not advertised it on the house-top and all over the world?

The best markets in all the world are in New England or very close to it, and the next best markets are right across the water, where we have ferry boats running at frequent intervals. The men who are fishing for foreign markets must come right in by your door to reach the seaboard and then go across, and they have to pay a great big tax to the railroad when you and I don't.

In and around the city of London there are more than six million people who must buy all the food they consume, and as a very large measure of English food products are imported, the farming lands of the eastern United States are nearer to them than any other lands of cheap production in the world. It is a wonderful opportunity for us not only in our fruit products but many others, and if we fail to take advantage of it, it is our own fault and not the fault of the situation. Now as to our own eastern markets, as I have said before they are the best markets in the world and we are the nearest to them of any fruit producers in America. It gives us an opportunity to develop our fruits upon the tree, plant or vine to their highest perfection and then market them quickly. These eastern people not only have a taste for and appreciation of our fruit, but have an ability to buy that is not equalled by any people on the face of the globe. The recent census shows that the deposits in New England savings banks are far greater than in any other section of the country, and the increase in deposits for the last five years has been greater than in any other period of fifteen years. We can have our share in this money if we only will.

Let me tell you a little thing that came out of the World's Fair at Chicago ten years ago. How many of you brought home the

business idea of that fair to Maine? There were millions in that fair for the State of Maine if there was anybody smart enough to have brought it home in their heads. As you all know, the various states made plans for the apple exhibit by having the fruit put in cold storage the fall prior to the fair, and later it was sent to the permanent cold storage building on the grounds, so that there was fruit at hand day by day to replace any specimens that failed through decay or other means of loss. Friends of mine who visited the fair in May and early June came home and told of the wonderful apple exhibit of some of the far western states and the southwest and said that New England wasn't in it at all. But early in July a great fire destroyed the cold storage building and then the fruit from every section of the country had to stand or fall on its own merits, as there were no specimens to replace the daily decaying ones. In a few short weeks practically all the apple exhibits were wiped out except those from the northeastern corner of the United States, showing that our apples have keeping and staying qualities superior to those from any other section in America. There was millions in that little idea if Maine had got hold of it. It is a point of tremendous value, and is going to be more so in the future as the demand for good all-the-year-round apples is steadily increasing. You have the soil, you have the climate, you have some of the finest apples, you have thousands and thousands of acres that will produce as fine fruit as can be grown anywhere on earth, and all it wants is men and women who have faith in themselves and in the business to practically apply culture on an extended scale. No amount of hard work will win the highest success. Men work too hard but they think too little. If I was a preacher and was going about to preach to farm audiences, I would take for my subject "judicious laziness," and I would preach to the farmers to be judiciously lazy. Don't work so hard that you haven't a rested brain that can think and plan about your business.

I want to emphasize the fact that our fruit growing cannot be very successful without the most thorough tillage of the soil and thorough preparation of the soil, and to show what it does on land, on good land and poor land, I want to cite an instance from the wonderfully fertile soil of the Sacramento valley of California. I went there some years ago to visit the great farm of Gen. John Bidwell, whom some of you voted for perhaps for



FROM DRAWING SHOWING ROOTS OF MAMMOTH CLOVER.

By courtesy of Prof. John Craig, Cornell University.  
See article on Cover Crops for the Orchard, page 57.





President of the United States on the Prohibition ticket some years ago, a grand good man and a fine farmer. He has a farm of 40,000 acres. Besides fruit he grows a good deal of wheat and the fields are plowed with eight gang plows which turn over hundreds of acres daily. This is seeded to wheat and hurriedly harrowed in with broad, sweeping harrows that cover twenty-two feet every time across the field. Business is done on a very extensive scale. Right adjoining his farm there is a widow who has a farm of 500 acres, land practically identical with that of Gen. Bidwell, but as she has not the money or the machinery, this land is thoroughly well plowed with a two-mule team and a modern steel plow, and after lying fallow a couple of months is again cross plowed and then thoroughly pulverized over and over again with cut away harrows, after which the seed is applied and it is thoroughly worked into the soil, which in this way is far better tilled and prepared than the adjoining land of Mr. Bidwell. The result is that year after year, while Gen. Bidwell's yield is about fifteen bushels of wheat per acre, that of the widow is from thirty-three to thirty-five bushels, more than doubling the crop simply by tillage alone.

Everything depends on culture. Every year the public is demanding better things, finer berries, larger and more beautiful plums and pears and peaches and apples. The only way to bring them to their most perfect development is through thorough and frequent tillage of the soil, which keeps the trees steadily growing all the time by furnishing the necessary amount of moisture and by freeing what plant food there is in the soil by constantly bringing new particles of earth in contact with one another.

I was down in northeastern Massachusetts two or three years ago, talking to an institute there, and one man there said he had recently planted out a hundred peach trees to please his wife, but as he hadn't much faith in their ever bearing peaches he had seeded the land down to grass so he would be sure to have one crop any way. Surely such an orchard as that has "gone to grass" at the start. Coming up on the train today, all the way from Boston I haven't seen a cultivated apple orchard, and I suppose that more than 90% of the orchards in your state are in sod. You get many and fine apples in this way, but you could get more and better ones and more frequent annual crops, by thorough cultivation.

Next to thorough cultivation, intelligent and careful pruning is one of the essentials to successful fruit culture. To give a thorough talk on pruning would require one whole session of your society and I can only hint at it now. The question of pruning is a local one, depending upon the tree itself, upon the soil it is in, and what you want to prune for so that no man can lay down any definite rules of pruning, only the broad and general one of doing some pruning every year, pinching a little here and getting it that way, and a little there and getting it the other way, a general training up instead of letting it grow at will and finally putting it in jail to reform, that is giving it an everlasting slashing once in four or five years. The pruning is for several purposes. One is to let sunlight in upon the fruit.

The next essential to fruit culture, it seems to me, is thinning the fruit. If you plant a tree in soil prepared as well as possible, and prune it as we ought to year after year, when it comes in bearing it will be inclined to produce too much fruit, and therefore a thinning off of a large proportion of whatever may set on the tree is absolutely essential to the production of fine fruit. This question depends largely on your courage and your knowledge and on your wants, but as a general proposition, every tree develops from two or three to ten times as many fruit buds every year as it ought to develop in fruit. If the first time it comes to bearing,—take an apple for instance,—I may be treading on dangerous ground,—but taking an apple, when it has got to be five or six or eight years old, according to the locality, it will bear its first fruit. If it should set forty apples the first year, take off thirty apples and leave ten well distributed over the tree. The chances are that the next year it will produce a hundred, and if it does pick off seventy-five. The following year it may attempt two hundred. If it does, pick off a hundred and fifty, because the seeds in that extra amount of apples will sap the vitality of the trees and you want to get the tree into annual bearing.

Here is a point you are going to differ on. Some will say, "I would like to see a man make Baldwin apples bear every year." But if a Baldwin apple or any other apple is brought up in the way it should go and the fruit is thinned from the start and it is never allowed to overbear, it is nineteen to one in favor of its bearing annually. The trouble is you let the tree, the first time

it attempts to bear, produce all the fruit it can grow and the strength of that little tree is taken in developing the fruit, the whole strength is gone into developing the fruit and none is left for bud making. The next year, having no fruit, it has got plenty of time to overdo itself in the line of bud development. I want to state right here at this time that there need not be any "off years" in apples except the tree is growing on the land of an off man. That is a broad general proposition. There will be occasionally failures from conditions that you cannot help, but six years out of seven you can have annual crops of apples if you will. By thinning you increase the size, beauty and quality. The quality of the fruit is very much superior when a moderate amount is distributed all over the plant. So with all kinds of fruit,—you increase the quality, you increase the size, you increase the beauty,—consequently you increase the value.

When fruit has been grown to its best possible development through culture, feeding, pruning and thinning, then comes the question of spraying. Spraying is practically as much of a necessity as culture or pruning. The man who plants an apple orchard or an orchard of almost any kind today and does not plan to spray the trees at the right time is taking a tremendous chance of loss. It is essential that this should be done. Of course you know as much about that as I do, and if you don't the Experiment Station can tell you in detail. It is thoroughly explained in their bulletins.

After the fruit is grown the question comes up of packing it in packages most suitable for the market, and there is where we often miss it. We have missed our opportunity, it seems to me, in this country to reach the consumer because we do not have our fruit put in packages of convenient size. I got a tremendous lesson this last year. There were two Belgians over here, bright young fellows, graduates from a university, who had some means and were looking for a new country and new opportunities. One of them was an engineer and the other had some other profession, but they came over to look America over and see what the opportunities were for young men of brains and energy. They travelled up and down this country for five or six months and they became interested more and more in fruit. They were astonished at the consumption of fruit by the people of this country; they were astonished at the difference that was paid for

fine fruit and inferior fruit, and they looked the question all over and finally decided that the opportunity for the fruit grower was the greatest of anything for any man in America. There was no profession or business that they could see in America that offered such splendid rewards for brains as the culture of fruit, and they visited various fruit growers. One point they made to me in regard to the apple. They said they could go to the fruit stand and pay five cents apiece, but they wanted to buy a package as they came from the grower, and it was a great big barrel, and they said, "Why don't you put up the apple in some package that a man can buy and take home and take to the hotel?" Another thing these men criticised was that there was no adequate distribution of the fruit. There would be good fruit in one city and a hundred miles away but very little.

What are we doing about these things? What are we planning about these things? These are questions that want to be thought out. Somebody in Maine has got to begin to do something about this question of apple packages. In the large cities, where the people live in flats, they never think of buying a barrel of apples because there is no place to put it, but they would buy a barrel in four packages or three, and they would find a place to put it and use it up quickly and want more. You could double the consumption of apples in this country right away, perhaps not for the first year or two, but in a very little while, by giving a package that would go into the home. Then cram the package just as full as you can get it. If it is supposed to be a ten-pound package, get in ten and one-half pounds of fruit if you can. Pack it just as full as it can be crowded. Pack it honestly all the way through from top to bottom. If you have one single imperfect specimen to go into the package, put it on the top, imperfect side up. Put a label on top with your name on it, and let them know who does business in that way, and then make them pay for it, pay big for it,—they will be glad to do it. Every farm ought to have a name and a reputation. Every farmer ought to have a business sign up in front of his farm, giving his name, the productions of his farm, and the postoffice address if necessary.

But if you have to ship your fruit away, ship it to a commission merchant who knows how to reach customers in a wholesale way better than you do. Talk about dishonest commission men

is all rot. I know commission men and I know farmers, and there are more honest commission men than there are honest farmers as a matter of fact. They simply know more about the ways of the business world. A man who is honest is honest because it pays. Nothing in the world pays like telling the truth. Decide on what market you want to supply and supply regularly. Go to the commission man and have a heart to heart talk with him and tell him what you are going to do and how you are going to do it, that you are going to have clean packages honestly packed and that when he finds your name on top it is a guarantee that he can stand by; talk to him until you convince him, and if you can't, go and see the rival across the way. They all want that sort of thing. Invite him to come and see your farm; take him out in the field and show him what you are doing; get him in sympathy with you and your business. Some one has said very foolishly and unwisely years ago that "there is no friendship in business." Don't you believe it. There is friendship in all good business and the best business is that which is based upon trusting friendship between buyer and seller, between commission man and producer. So get your man into real sympathy with your business. You must be in sympathy with it yourself; you have got to be thoroughly interested in your business to succeed.

E. W. Wooster.

Q. Which do you consider the more correct method of fruit improvement, by bud variation or seed?

A. By seed for new varieties, and by bud variation and selections from most valuable specimens of standard sorts great improvement can be made.

Q. In strawberry culture, do you advise fall and spring applications of fertilizer on plants that are to fruit that spring or summer?

A. Not for the purpose of developing more fruit buds or root power, but perhaps to aid the production of a somewhat greater foliage such application may be advised on weak foliage varieties.

Q. Have you ever tried the experiment where you have applied fertilizer during the whole season, all that the plant could possibly take up, and then put on more in the fall or early spring, and then noticed the results carefully of the extra amount?



A. I have never tried it in late years because I think I know better for my soil and the varieties I grow mostly for market.

Q. Will you name a half a dozen of the best strawberries?

A. For general purposes over a wide range of country, Glen Mary, Haverland, Splendid, Sample, Clyde, Mammoth and Dunlop are undoubtedly the best now known.

Q. Please name several of the best plums.

A. I prefer the Japanese plums, a new race of fruit that has come to this country recently. They are as productive as cider apples, as pretty as "the best girl"—they come early and medium and late, and they go through a large range of color—Red June, Abundance, Chabot, Burbank, perhaps represent the cream of them. For this cold north country, Hale is highest in quality, Wickson largest and Satsuma best for canning.

## MAINE FRUIT AT THE PAN-AMERICAN EXPOSITION.

W. M. MUNSON, Orono.

Most of you are aware of the history of Maine's Pomological exhibit at the Pan-American Exposition. At the winter meeting of the society held at Norway in November last, it was voted to appropriate \$250 for the purpose of showing Maine's fruit and later the legislature granted \$250 more. So the total sum available for collecting, installing and maintaining and exhibit was \$500. With this fact in mind I trust that censure will not be too severe when our exhibit is compared with that of New York, Missouri or Illinois—especially when it is known that these states provided from \$10,000 to \$15,000 each for a like purpose.

The collection of Maine's fruit was begun so late in the season that it was difficult to obtain all of the varieties desired and much of the finest fruit had already been shipped. The officers were therefore compelled, in many cases, to depend upon the open market for their supply and only the late winter varieties were represented. Some of the fruit was too small and poorly colored for exhibition and was rejected; but in general it opened up well and was typical of Maine's commercial orchard product.

A word as to how the exhibit was collected and forwarded may be of interest. Mr. Pope, treasurer of the society, was authorized to invite contributions of fruit, and many growers responded generously. It was necessary, however, to purchase several barrels. The fruit was sent to Augusta where it was carefully re-packed, each individual fruit being wrapped in two thicknesses of paper—the one next to the fruit being usually waxed paper. It was then placed in the warehouses of the Buffalo Cold Storage Company and kept at a temperature of  $34^{\circ}$  until desired for the tables.

In response to a telegram from Secretary Knowlton I went to Buffalo on the 10th of May last to make necessary arrangements for installing the exhibit. At that time the only exhibits in place were those of California and Connecticut. The hall was in confusion and it seemed impossible that order could be brought out of the chaos in time for the formal opening on the 20th. As a result of constant effort, however, when the time for formal opening arrived, besides the states already named, Delaware, Illinois, Maine, Michigan, Missouri, New York, Oregon and the Province of Ontario were able to make creditable displays. After that time Washington, Idaho, Virginia, Nebraska, Wisconsin, Minnesota, Florida and some other states came into line, and Horticultural Hall finally presented a very attractive appearance. The building itself is a beautiful structure 220 feet square and from the two corners nearest the main esplanade are large conservatories which connect the horticultural building with those devoted to Mining and Graphic Arts respectively. On each of the four sides is a wide entrance and the broad aisles intersect under the central dome. At the intersection stands a large statue of the Goddess of Light, made from the same model as that of the famous electric tower. Around this statue are grouped numerous cocoanut palms and banana trees which were brought from Florida. The larger portion of the western half of the building was given up to California, Missouri and the Province of Ontario; while in the eastern half New York, Illinois, Oregon, Washington, Florida, Michigan and Mexico occupied most of the space. Delaware, Virginia, Idaho, Minnesota and some of the other less extensive exhibits occupied space along the wall adjacent to the larger exhibits. Maine occupied a very advantageous position on the west side of the north entrance and just across the aisle from Missouri. The space was not large,



but it was the best available at the time the exhibit was decided upon.

About 100 square feet of floor space were occupied and, considering the circumstances, the location was all that could be desired. The exhibit was placed upon shelves, the front one being two and one-half feet wide and the five narrower ones were arranged in a series of steps above and back of this. The shelves were covered with green cloth and no plates were used. Upon the wall was placed the name of the State, and under this a placard bearing the name of the society and its officers. Here also were placed the diplomas awarded to the society at the Columbian Exposition in 1893. The exhibit itself, as already stated, consisted principally of winter apples—the object in view being the exploitation of Maine's commercial orcharding rather than the display of a large number of different sorts. The most prominent varieties shown early in the season were Baldwin, Ben Davis, Northern Spy, R. I. Greening, Roxbury Russet, Bellflower, Stark, King, Blue Pearmain, and a few others. Some of the fruit came out in excellent condition; in other cases there was a loss of about 50%. This difference is due to differences in packing and in the maturity of the fruit when harvested. The following figures will give some idea as to the general condition of the fruit when taken from cold storage:

Variety.	Date.	No. specimens removed.	Perfect specimens.	Slightly decayed.	Worthless.	Per cent perfect.	Remarks.
Exhibitor .....	.....						
R. I. Greening ..	May 18	60	42	4	4	.70	A very creditable exhibit. Fruit well packed, and in good condition. Some of the Roxbury Russets slightly wilted as if immature. *Four of these badly bruised.
Roxbury Russet.	May 18	85	82	1	1	.99	
Blue Pearmain..	May 18	65	62	1	3	.95	
Canada Red....	May 18	56	47	4	5	.84	
Baldwin .....	May 18	51	37	*7	7	.72	
Exhibitor .....	.....						
Baldwin ....	May 18	355	92	53	210	.26	Fruit apparently over ripe and poorly packed.
Exhibitor .....	.....						
Baldwin .....	July 11	285	250	29	6	.88	About 75 specimens were too small for exhibition, but all were packed carefully and in excellent condition.
Exhibitor .....	.....						
Northern Spy ...	June 13	100	66	30	4	.66	A very fine lot; but only 15 per cent specimens remained on the table July 11.
Northern Spy ...	June 28	104	65	33	4	.62	
Baldwin .....	Sept. 18	....	....	....	....	.87	

In general fruit kept in cold storage is not expected to "stand up" very long after it is taken from the refrigerator, and here again there was a marked variation in the contributions of fruit as well as in the varieties sent. The most remarkable case of long keeping was that of some Canada Reds sent by Mr. B. M. Titcomb of Farmington. The specimens were placed upon the exhibition table on May 18. The last of them were removed when the exhibit was replenished on July 11. In other words, some of the specimens were in good condition for a little more than six weeks. Some Blue Pearmain shown at the same time kept nearly as long. As a rule, however, ten days to two or three weeks marked the extreme limit of time during which any variety was presentable and in many cases some specimens would decay within three or four days. The fruit placed in cold storage supplied the table until the first of September when the early fall varieties came on.

September 10, at the request of the executive committee, I went to Buffalo to attend the meeting of the American Pomological Society and to make arrangements for continuing the exhibit during the remainder of the season. At this time there were placed upon the tables two barrels of fruit from the Experiment Station at Orono and one barrel sent by Mr. Knowlton. This lot consisted of the choicest autumn varieties including Alexander, Dudley Winter, Munson Sweet, Chenango, Primate, Porter, Wealthy and many others. The expressions of surprise on the part of strangers to our State at the fact that such fruit could be grown "way down in Maine" and the words of satisfaction and commendation from those who have formerly lived in New England, were particularly pleasing.

During the time from July 10 to September 10 the exhibit was in the care of Mr. Chas. H. Ross, the superintendent of the Washington state exhibit, and he was supposed to replenish the supply of fruit as often as necessary. From the latter date to the close of the exposition other arrangements were made and the supply of fruit was regulated from this end of the line.

After October 1, Maine's choicest winter fruit was shown in all of its excellency. From Aroostook, Cumberland, Franklin and Penobscot came offers of the best that could be obtained with no expense to the society save the cost of forwarding. The result was that Maine's reputation as a great apple producing

state was fully sustained as shown by the comments in the leading agricultural papers and by personal letter from Professor Van Deman, the judge of fruits.

The Rural New Yorker of October 19 says: "The exhibit of apples made at the Pan-American Exposition by the Maine Pomological Society made a very effective display. The society tried to show the commercial apples of Maine, and made no effort to collect abnormal specimens. This business-like exhibit showed all the colors and beauty of the fruit of the far West, with far superior flavor and keeping quality. We have never been able to understand why the people of Maine are so modest about showing their magnificent apples. The display at Buffalo attracted much attention but the Pomological Society ought to have had fifty times as much money as they did have for showing their fruit. As it was there was nothing finer in Horticultural Hall."

Professor Van Deman says:—"I am happy to say that your exhibit has been a creditable one, considering the opportunity which your state has had to make an exhibit here. The fruit has ranked well up in character and awards, which will soon be published, will show this to be the case. I am sure that it will result to the benefit of your State and especially to your Pomological Society which has been at the back of the entire exhibit."

#### LIST OF VARIETIES SHOWN.

The following list will indicate the varieties which were given most prominence at some time during the session:—Alexander, Arctic, Baldwin, Bellflower, Ben Davis, Black Oxford, Blue Pearmain, Canada Red, Chenango, Doctor, Dudley Winter, Golden Russet, Granite Beauty, Hubbardston, Hurlburt, King Sweet, King Tompkins, Mann, Milding, Munson Sweet, Northern Spy, Pewaukee, Porter, Primate, Ramsdell Sweet, Roxbury Russet, Rhode Island Greening, Stark, Shiawassee, Tallman, Wealthy, Wine.

Other sorts were shown, but aside from a number of the more valuable Russian varieties shown by the Experiment Station at Orono, they were not provided in quantities.

Besides the apples mentioned above, several cases of choice evaporated apples from Chas. S. Pope, Manchester, were shown;

also some canned blueberries from J. & E. A. Wyman of Cherryfield, and eight varieties of pears from J. E. Bennoch, Orono.

#### LIST OF CONTRIBUTORS.

The following parties contributed from one-half bushel to three barrels each :

John W. True, New Gloucester.  
Chas. S. Pope, Manchester.  
Chas. S. Phinney, Standish.  
B. M. Titcomb, Farmington.  
E. F. Purington, Farmington.  
C. F. Fletcher, Augusta.  
V. P. DeCoster, Buckfield.  
J. W. Libby, Hartford.  
S. L. Plummer, Sweeden.  
G. W. Whitney, Newburg.  
T. M. Merrill, Sabbathday Lake.  
F. H. Morse, Waterford.  
J. W. Dudley, Mapleton.  
J. E. Bennoch, Orono.  
Maine Agricultural Experiment Station, Orono.  
F. D. Grover, Bean.  
E. W. Gould, Bean.

In addition to the above, several of the exhibitors at the spring exhibition at Brooks gave the fruit which was shown there and likewise the exhibitors at the county fair at Farmington.

#### THE AWARDS.

In making awards at the exposition, each exhibit was judged according to its own merits, rather than in competition with other displays. At the close of the season it was found that Maine had received two gold medals, one silver medal, twelve bronze medals and three honorable mentions as awards for the fruit shown.

#### THE COST.

Early in the season it was feared that the amount of money appropriated would not maintain the exhibit until the close of the season, and after carefully considering the matter the executive committee decided to use some of the present year's funds in

this direction. The wisdom of this action was abundantly shown by the magnificent display of autumn and winter fruit that came in toward the close of the exposition. By careful management, however, the cost was kept practically within the limits of the original appropriation. The following is a summary of expense incurred:

Fruit purchased .....	\$65.30
Collecting and forwarding .....	133.89
Storage and cartage .....	36.15
Installation and maintenance .....	267.98
<hr/>	
Total .....	\$503.32

*To recapitulate:* With the exceedingly limited fund available Maine's exhibit was necessarily small. It was, however, representative and in quality it compared favorably with that from other states—in spite of the unfavorable criticism which has appeared in certain local newspapers. Any fair minded person who has given more than a passing glance at the pomological display in the Horticultural building, will concede that Maine's tables usually presented a creditable appearance and that her exhibit was not surpassed by that of any of the states which did not expend far more money and maintain constant attendance. This latter fact is, perhaps, due quite as much to the well known quality of Maine fruit as to any other condition. I may add that as a natural sequence to the display of Maine's fruit, the tide of buyers has been turned eastward during this year of short crops and Maine's farmers and orchardists are able to dispose of their crop at very satisfactory prices.

## PLEASURE AND PROFIT FROM PLANT STUDY.

By Prof. A. L. LANE, Waterville.

The profit to be derived from plant study is at once apparent from the simple fact that all our food comes from plant life. Directly or indirectly, at first hand or at second hand, all animals, and man among them, receive their entire sustenance from vegetable growth or through the mediation of plant activity. We take our daily bread at the hands of practical botanists.

It would be absolutely impossible for the seventy millions of our population to find food for themselves, still less to have surplus for exportation, but for the fact that men have made careful study of the various food plants, their propagation, cultivation, improvement, multiplication and transportation. Contrast our present abundance with the precarious existence of the Indian tribes that roamed over this country and secured scanty sustenance by hunting and fishing and to a slight extent by the cultivation of Indian corn. If he is a benefactor of the race who makes two blades of grass grow where one grew before, still more is he who introduces improved kinds of grain or better methods of cultivating and utilizing those already known. Plant study is directly contributing and absolutely necessary to this result. The practical, working knowledge of food plants, of grains and fruits, already obtained, gives us a wealth of resource lying at the foundation of national prosperity and there is still abundant room for study and improvement. It seems to be a law of nature that only the plant can feed directly upon inorganic matter, upon matter that has never been alive; and thus the higher, more intelligent life of animal and of man could not exist without the intervention of the lower and less sensitive life. Even the birds and other animals share with us in the fruits of this study and gather their food with us often from the fruits of our own labor. In the higher forms, plant and animal are separated by a wide gulf; there is great difference between a man and an elm tree, for example; but in the lower forms consisting of single cells and studied only with the compound microscope, it is harder to draw the line, and when we come to separate such a plant as a diatom from such an animal as the amoeba the task



is more difficult. Here scientists make use of the principle before stated and call the one a plant and the other an animal according as it can or cannot feed upon inorganic food.

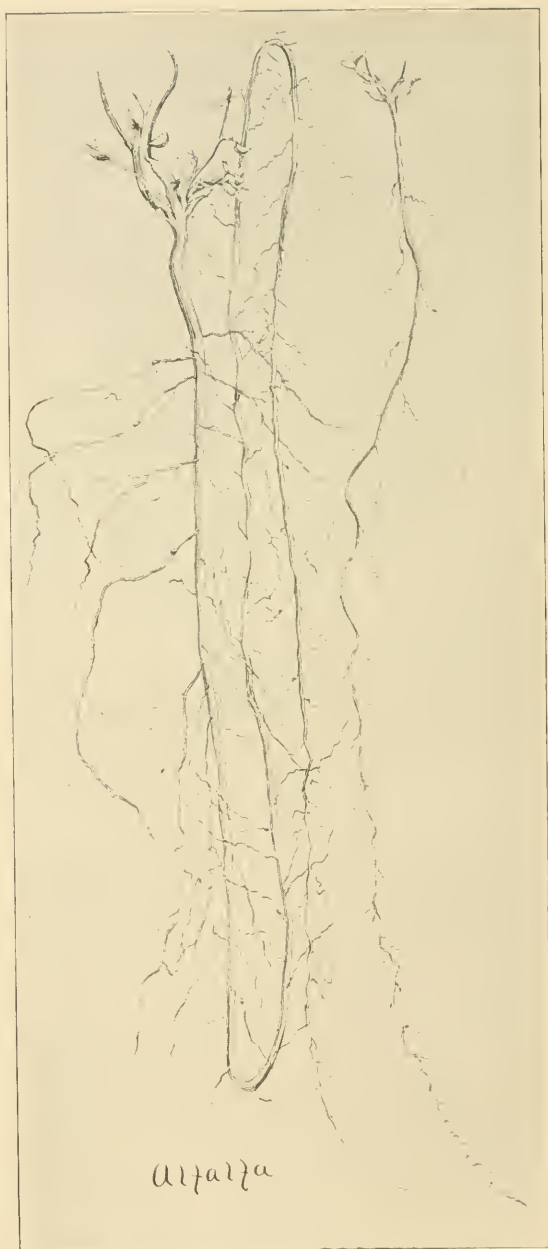
Having seen the necessity of a knowledge of plants and how to care for them even to our daily bread, let us come to the subject of pleasure from plant study. No real distinction can be made between pleasure and profit. As in the well-known defence of Bunker Hill Monument, "I would like to have the idea of good, explained and analyzed and run out to its elements" and then it would be easy to demonstrate that whatever ministers to pure and innocent pleasure is of real value. As Emerson says in his poem on one of our common flowers, the rhodora, "Beauty is its own excuse for being." Pleasure is one of the utilities of life as real as any other. Whoever would keep sane and sound and not grow morbid and misanthropic, must have varied forms of pleasure and enjoyment. The duller and more plodding the daily work the greater the necessity for change and recreation.

The largest part of our life has relation to pleasure.

Business depends upon this element. The greater portion of the business of the world ministers to taste, to enjoyment, to the sense of beauty, to pleasure rather than to mere utility. If we are going to rule out all pleasure why not wrap ourselves in the blanket of the Indian or in the coarsest, rudest material for clothing instead of in the beautiful forms and colors with which civilized men and women adorn themselves? The world is made beautiful for our enjoyment and for our profit. We are false to our high privileges, we are going contrary to the evident purpose of creation, if we do not open our eyes to behold the beauty and our minds to understand something of the mystery with which the Creator has everywhere surrounded us. The sky over our heads is beautiful. Look upon such an evening as this and see in the western sky the new moon as a crescent holding the old moon in its arms; in the southwest see Orion, the most beautiful of our winter constellations, still shining brightly; overhead a little to the east of the zenith is the sickle of Leo with Mars the reddest of the planets still beautiful; and in the northern sky shines the Pole Star marking almost the exact north, with Cassiopeia a little removed, and the Great and Little Dippers like "the two hands of the clock in the sky" as Prof. Proctor calls them, turning constantly around the pole, but in our latitude







FROM DRAWING SHOWING ROOTS OF ALFALFA.

By courtesy of Prof. John Craig, Cornell University.  
See article on Cover Crops for the Orchard, page 57.

never quite setting. Is it not worth while to be acquainted at least with the more prominent stars so that we may recognize them as old friends on their reappearance each in its season?

The very rocks are beautiful, whether as on some mountain top bold and bare, wind-swept and storm beaten, or more often gray with lichens or green with mosses or outcropping amid grasses and shrubbery. The hills and valleys are beautiful, whether the valleys are sharply cut into gorges and canyons, or by longer weathering worn down into more flowing outlines. Stand for an illustration on Mount Percival and look far out and see our fringed coasts and the many islands lifting themselves to your view and the very blue of the sea rising up to your vision until it meets the blue of the sky in the far horizon.

In the trees and smaller plants we find a beauty of endless variety and of ceaseless changes. How the trees differ in size, in form, in foliage, in coloring; how they change from season to season. Think of the giant sequoias of California 300 or even 400 feet in height, 100 feet in circuit at the foot, and in age the Methuselahs of the forest counting their years by the 6,000 or 7,000. Contrast these tallest of trees with the willows of the far north where the fully grown tree may not be more than two or three inches in height, or with the evergreen trees on Mount Washington or on our own Katahdin where the trees become mere dwarfs crouching closely to the thin soil and the rocks lest they should be torn away by the winds.

In the extensive forests of our Pine Tree State beauty and utility go hand in hand. Alas that this glory of our State should ever depart. But when we contrast the small logs which are now floated to our mills with the huge sticks of timber of which our fathers tell us, it would seem that there might be danger of regretting too late our own lack of care for our woods. Forestry and orcharding are not so far apart but that each may learn something of value from the other.

Trees have relation to each other and to smaller plants which are often very interesting and suggestive. When the farmer transplants trees into a row to serve as a protective hedge to shelter more delicate plants, he is only doing on a small scale that which nature often does on a large one. My attention has been recently called to a most striking example of this fact. When our forests of spruce are cut off, it is well known that they do

not grow up at first to spruce, but that other and shorter lived trees notably birches and poplars take their place, apparently fully occupying the ground; but if one searches closely among these trees he will find here and there small spruces making their appearance, and that what is really going on is that these trees of more rapid growth and shorter-lived are furnishing protection for the slower-growing spruces, sheilding them from wind and storm until they are large enough and sufficiently compact in mosses to shift for themselves and to protect each other. Meanwhile the birches and poplars by their death and decay enrich the soil for the more vigorous growth of the coming forest of spruce. This process one may witness in different stages in different places. To witness the entire transformation he would need to live about three hundred years according to the estimate of an experienced lumberman. There are so many lines of investigation opening before the student of botany that he need never be at a loss for subjects of study. There can be no place in this State surely where the plants of one's own neighborhood would not furnish most interesting material. To set one's self the task of becoming acquainted with the plants of his own locality and doing this by personal exploration in different directions so far as he could readily extend his search, would prove to anyone at all interested in plants a most pleasant way of extending his acquaintance with them. Such tramps may well furnish a very pleasant part of the memories of one's childhood and how quickly these recollections recur at the sight or even the mention of the well-known plants. The plants will vary somewhat with the locality, but among them in most parts of Maine will be found the dandelions, buttercups, daisies, clovers, mallows or cheeses of the roadside, and the violets, anemones, jack-in-the-pulpits, trilliums, lilies, irises, dog-toothed-violets or adder's tongues, lady's-slippers and many more treasures of the more secluded hunting grounds. That fishing excursion has not been a failure of which the net proceeds consist in a bouquet of arrowheads, pond-lilies and cardinal flowers. To go specially for the flowers themselves would be even better, and less likely to end in disappointment, for in this quest, if we do not find the particular flowers we are looking for, we may find others that may please us even better. Nature is so profuse with her gifts that with rare exceptions "Everyone that seeketh findeth." The unex-

pected finding of some rare plant will repay or prevent many a disappointment. It is no small joy in April after wading through snow in the woods to come out on the sunny side and to find butterflies flitting about and the ground dotted with hepaticas in full bloom, their delicate flowers in all shades from the pure white up to a most beautiful blue; or later to find by a babbling brook on a wooded hillside a level plot of rich, damp soil filled with plants of the yellow lady's slipper in full flower, so that you pick all you can well carry and yet leave many more for the next comer; or to search for years for the showy lady's-slipper and then by a passing glance find a swamp by the roadside so full of them in full blossom that you gather these largest and most beautiful of our wild orchids literally by armfuls; or in the deep seclusion of a cedar swamp where the damp moss yields like softest carpet to footfall to find by scores that rarest, daintiest orchid of them all, the beautiful calypso; or once more in the late fall, "When woods are bare and birds are flown," riding along a country road suddenly to catch a glimpse of blue by the roadside and to know that a flower long looked for in vain has been found at last, the fringed gentian of which Bryant sings so sweetly. Such experiences as these and others like them are like cold water to a thirsty soul

"The source of an exquisite pleasure,  
The purest and sweetest that nature can yield."

When one becomes fairly familiar with the plants of his own locality, he may then set for himself the broader task of studying the flora of the entire State. Maine is so large a State with such varied conditions of soil and climate that it has a very rich and abundant flora and one which invites and repays enthusiastic study. The twenty-five hundred or more miles of seacoast fringed by inlets and projections and bordered by many islands, the extensive river systems, the unnumbered lakes and ponds, the bogs and marshes, the valleys, hills, mountains, the unique position, the northern oceanic current that reaches our shores, the southern slopes of many of our hills and valleys,—all these give to Maine a range of plant life wonderfully varied and interesting. To make a full study of all these plants and their localities would be a task too great for any one person, though it may be very largely accomplished by combined effort such as the Jos-

selym Botanical Society of Maine is endeavoring to secure. The Portland Natural History Society publishes a list of Maine plants to which additions are constantly being made. Among those specially active in this work may be mentioned Merritt L. Fernald of Harvard University and Edward B. Chamberlain of Brown University; but the name which should be mentioned with greatest honor as of one having done the largest amount of personal exploration is that of Miss Kate Furbish of Brunswick. She deserves highest credit for her work as a collector for many years and especially for bringing her trained skill as an artist to the task of reproducing in color the flowers of the State. Any one may aid in this work by exploring his own neighborhood and by putting himself into connection with other botanists in the State.

The life history of different plants is another extremely interesting line of study. To begin with the seed and to trace the growth of the plant through rootlet, first leaves, root, stem, branches, foliage, flowers, fruit, seed again, until the cycle of life is completed; to compare different plants at all these stages; to distinguish annuals, biennials, perennials in their habits of growth; to notice what office in the economy of the plant the part which we take as food or which serves as food for birds and other animals, was designed to fill; to study special contrivances as for crop-fertilization in the lady's-slipper, barberry, iris, evening primrose, sage and many other flowers; or for the scattering of seed as in the witch-hazel, pansy, burdock, bur-marigold, agrimony, dandelion, thistle, milkweed, willow, maple, poplar and so on in a list of indefinite length; all these subjects and many worthy of mention with them such as propagation of plants by runners, layers, cuttings, grafting; whole classes of plants as yet unmentioned, grasses, sedges, ferns, rushes, fungi, mosses, lichens; all these may furnish endless subjects of profitable study. A few plants must be studied to be avoided because they are poisonous. Fortunately only one plant at all common in Maine is poisonous to the touch and that is the well-known three-leaved ivy or mercury so-called. The simple knowledge that the common woodbine with leaves in five leaflets may be safely handled, and that you must keep your five fingers off of the somewhat similar plant with three leaflets, would prevent many cases of severe poisoning. There are certain common roots which are



even more dangerous if eaten. When a man moves with his family upon a newly purchased farm and, as recently occurred in Winslow, within a few days loses a three-year-old son by his eating a small piece of the root of the water hemlock (*cicuta maculata*), ploughed up in the field near the house, it is a sad beginning of life in the new home. There are so many poisonous roots, berries and flowers that the simple rule never to eat what you are not sure is harmless should always be observed.

Another and a most interesting subject of study may be found in the various changes which take place in plant life with the succession of the seasons. It is a source of constant pleasure and of ever fresh experiences to watch the inflowing tide of plant life as it rises higher and higher from earliest spring till late summer, and then as it ebbs again until it seems to come to a dead pause in mid-winter. There is no season of the year when the botanist may not find ample material for profitable investigation. In the fall he may study the later flowers of the year, golden rods, asters, gentians, the witch hazel blossoms clinging yellow upon the stems after the leaves have fallen, many belated blossoms of earlier blooming species, and often flowers which are really early comers of the following spring, alder tags, pussy-willows, violets, strawberry blossoms and may flowers at least in bud. It is the time most forms of fruit, the fading of the leaves and other changes of the season are in their glory. It is exceedingly interesting to mark the preparations which Nature makes alike for the winter's rest and for the more vigorous life of spring.

In winter one may study the evergreen trees, the very shape of which is protective against the breaking of their branches by the snow; the general habit and branch arrangements of deciduous trees, the record of earlier growth in the scars upon their branches, and the promise of future growth in the snugly-packed buds upon their twigs; the many ways in which latent life is packed away in roots or in bulb, under ground, or in the air in buds variously covered with scales, or wool, or varnish. There is no need to mention subjects for spring and summer. They thrust themselves on the attention of every one who has eyes to see, and richly repay his observation and thought.

## PLANT GROWING FOR GARDEN AND LAWN.

By W. H. ALLEN, Augusta.

We are well aware that there are few, if any, callings, where more hours and longer days are necessary, than on the farm; yet there is need in this particular direction for a small share of our time, which would be to our advantage. A good slick looking animal will often times sell for double what an inferior looking, though far better one, will bring, but when we have the two qualities combined; the value is greatly enhanced. The eye is quick to detect the beauty of the surroundings of the most humble looking home, that has a well kept lawn and a few flowering plants to speak for the thrift of the owner. It is not necessary for us to engage the services of a landscape gardener, to carry these suggestions into effect. Let us suppose we have determined to improve the grounds surrounding our homes and we find old trees—it matters not what kind—old, simply from the lack of proper trimming and pruning; we will trim these up and shape them; if there are others that have outlived their usefulness, we will take them out; now if there is nothing to interfere, we will plow to the road and make the improvements look as if all on our own land; before grading it would be advisable to remove the top soil from and depressions, to be replaced when poorer earth has been used to bring the grade up, thus keeping the best soil on the top; we should now grade and even up the surface, get our elevations from the house to the road and make it uniform and equal. We are doing something now, which we hope to be permanent, so we use plenty of well rotted manure, made fine, and if a liberal quantity of bone meal and ashes are added; so much the better.

Lawn grass seed mixtures that can be had already for sowing, produce the best results. Not less than one quart of seed should be sowed to an area of 300 square feet, or four bushels to an acre. A perfect lawn cannot be obtained with a light seeding. After the seed is thoroughly harrowed, it should be rolled smooth and firm; this rolling is of great importance to insure a uniform catch. A lawn to continue smooth and even, should be mowed often. We now have a rich velvety lawn and we wish to further beautify

it with the addition of a few plants and shrubs; this can be accomplished with a very small outlay.

We have annuals, biennials and perennials to start with; the annuals and perennials being the most popular for general use. Many of our most beautiful bedding plants can be propagated by seed, and while it is true that the hot bed or greenhouse is the most convenient for this purpose; yet it can be satisfactorily accomplished in the windows of our dwelling houses by exercising a little care, and with the use of shallow boxes two inches in depth, one-half filled with leaf mold or fine light loam, sowing the seed in rows with very light covering and pressing the seed firmly, leaving a smooth surface, a light sprinkling and partial shade from the hot rays of the sun, and being careful not to allow the young seedlings to become dry. When the first character leaves form, they are ready for transplanting into other boxes, or small flower pots; there to remain until removed to beds on the lawn. A most beautiful effect can be had through the entire season by sowing annuals in this way.

The selection of varieties depends entirely upon our own fancy, but let us picture to ourselves the effort of a border bed with either phlox *Drummondii*, marigold, petunias or begonia *vernun* for the center row with borders of either the dwarf blue *ageratum*, double-flowered *portulaca* or Tom Thumb *nasturtium*, plants of dwarf habits. For circle beds, a border of *verbenas* with *salvia* (scarlet sage) next, and *cannas* for the center. A bed of either description is very effective. The canna may be grown from seed and will bloom the first season, if started early; the seed should be soaked twenty-four hours in water and the outer shell be nicked with a knife to insure germination. The tubers may be stored in the cellar through the winter and increased by divisions for future planting. The canna is growing in favor as a bedding plant. I might add to this list, but suffice it to say nearly all annuals are of a showy nature and add a charm to their surroundings. *Coleus*, *achyranthes*, *alternanthera*, *centaurea* and *stevia verigator* are for their foliage most beautiful and showy bedding plants. There is no plant yet introduced in the floral kingdom to take the place of the *pelargoniums* (our old favorite *geraniums*) and the vast improvement made in this most popular flower is really remarkable. When the hardy perennials are once established, they may be said to be there for an indefinite time.

Among the herbaceous plants of this family, may be mentioned the perennial phlox, producing immense clusters of white, pink and crimson flowers; the rudbeckia or golden glow with its numerous bright yellow blossoms, the spirea japonica, for a dwarf plant, there is nothing more graceful; hollyhocks in their various shades, and dianthus barbatus—the old garden sweet William. In hardy vines and climbers for the piazza and trellis, honeysuckle is fine, and the clematis is a great favorite, because of its large and beautiful flowers, and for climbing roses, in white, the Baltimore belle, the prairie queen in red and the modest little crimson rambler. For covering old walls there is nothing better than the ampelopsis veitchii, where it will get partial protection in winter, as it is not entirely hardy in our climate. For shrubs, hydrangea paniculata grandiflora, is so well known, it requires simply to be mentioned. A bed or single plant attracts a great deal of attention on a well-kept lawn. The deutzia and weigelia are ornamental and useful for cut flowers. Hibiscus althaea (or rose of Sharon) should be on every lawn, the diversity of color in the different sorts makes a fine display. Lonicera (or bush honeysuckle) is valued highly on account of its fragrance. Pruning of the shrubs is very important; for the flowering of each succeeding year, depends largely on the proper method pursued with the knife. Indiscriminate pruning is too often practised, because the flowering habit of the shrub either is not known, or considered. The new growth of the lilac, deutzia and others produce their bloom for the following season, and consequently only the dead wood and weaker branches should be cut back to the ground; such as the hydrangea and althaea form their flower buds on the young growth in the summer of the same year they bloom, so that a moderate amount of pruning to shape the shrub is all that is required.

There are so many varieties of plants that might be added, that I have ventured to mention but a few of our most popular kinds, but a list would not be complete without including a selection of sweet pea, if for no other purpose than to decorate the table. To insure their blossoming the seed should be sowed early in trenches, well enriched with dressing and not less than five inches in depth, only that the covering should be gradual, at first about one inch and the balance filled in as the growth advances. Yes! we should endeavor to make our homes as pleasant and attrac-

tive as our means will permit; so if we want a few specimen plants for large vases, what is more graceful than a *dracaena indivisa*, the *araucaria* (Norfolk Island pine) makes a beautiful plant either alone or in clumps, *caladium esculentum* is of easy culture, only requiring plenty of water, as it has leaves of immense size. For a choice selection, a bed of hardy hybrid roses might be included and for a range of color, the General Jacqueminot, a rich crimson; Baron de Bonstettin, a dark red; Margaret Dickson, white, and Magna Charter bright pink.

### FLOWERS—THEIR USE—ARRANGEMENT.

By Miss B. P. SANBORN, Ben Venue Greenhouse, Augusta.

The uses for flowers are so many and varied that it will be impossible for me to name them all, even if I could. It must be true, however, that Providence had great good in view, for we find them everywhere, on mountain tops, in valleys, in marshes and bogs, on tablelands, in our mowing fields, by the roadside in the far North where the sun shines only a few months in the year. If vegetation starts at all it is in a solid carpet of perfect tiny flowers. In our climate we have great variety, in the tropics the richest abundance, in fact, they are everywhere.

We read that in France there are acres and acres of roses grown for the sole purpose of attar of roses for the world's market. Rose leaves are preserved and used with spices for Pot-pourri jars, we have also opium from the poppy, the *arnica* plant grown under our feet, *taraxacum* from the dandelion and thousands of other things familiar to the professor of science, all made from flowers, their stems, seeds, bark or roots, besides the numerous perfumes and extracts with which the market is filled.

I found very wonderful histories of some of our familiar flowers and trees when I begun on my paper, and here is one good use to be mentioned to the young people, which is to take time to trace the origin, growth, life, character and language of these interesting plants.

I read in Henderson's "Handbook of Plants" "that the almost innumerable varieties of pansies, embracing any color from white to black, maroon, yellow, purple, blue, self-colored and those with the most delicate markings as well as the bold and showy faces of



others are all hybrids between the annual species which is a weed in the English fields and gardens, and the perennial kinds from Tartary, Switzerland, and the natives of Great Britain and France and this country.

The first attention paid to the cultivation of the pansy and that which resulted in making it a florist's flower, was given by Mary Bennett, who had a small flower garden in the grounds of her father, the Earl of Zankerville at Walton-on-Thames, England. She had prepared a little bed in which were placed all the varieties of pansies which she accidentally discovered in this garden.

Aided by the industry and zeal of the gardener, several new varieties were raised from seed and transplanted to this bed. From this small beginning in the year 1810 may be traced the rage which has since prevailed in the cultivation of this popular flower. The English, French and German horticultural societies offered great inducements to the florist in the way of premiums for the finest flowers, and as the race was free to all, the interest awakened was of a most lively character, one which any gardener of importance helped to keep alive. The result has been the pansy of to-day in contrast with the little violets of our woods and fields. So much for the pansy.

I read in a "Tour Round my Garden," translated from the French, that the wood anemone is a pretty "little white flower tinged with violet." This is the original anemone which was brought into France from the East Indies more than two centuries ago by Mr. Bachellier, who grew them more than ten years before he would give a single one to anybody. A magistrate went to see him in his robes and purposely making their folds drag over the anemones in seed, contrived to carry away a few of them which adhered to his garment. The improved varieties form a beautiful rich green turf from which spring simple rose-shaped anemones, red, scarlet, purple, violet, white, or streaked with all these colors, forming a rich bed of beautiful coloring. Our gladiolus comes from South Africa, the name meaning small lily. The Tiger lily comes from Asia, the Easter lily from Bermuda, or Japan. Our white stock or gilliflowers are Italians.

Asters came from China more than a hundred years ago. The horsechestnut tree is from Constantinople; it was sent into Austria in the year 1594 and carried to Paris in 1610 by the same man who had the anemones.



Violets have been brought from almost every country even Patagonia. The market affords a perfume called violet, but it is never distilled from this flower. It never separates its odor from itself. Perfumers use the root of the Iris of Florence, which gives a slight violet odor. But the perfume of the violet you never get except from the flower itself.

There is no country without roses, from Sweden to the coasts of Africa, from Kamtschatka to Bengal, or on the mountains of Mexico; the rose flourishes in all climates and in all soils. What is the use of them? We call them luxuries, yet they are within the reach of almost every one. Even in any large cities they are brought from fields, lanes, woods, gardens and green houses. Sometimes the sidewalks are almost lined with men, women and children calling to the hurrying throng, "mayflowers, roses, violets, three cents a bunch, two for five."

Flowers are used to express love, sympathy, condolence, remembrance and farewell. We send them into hospitals, prisons, jails and dungeons. Flowering plants and vines are in most of our schoolrooms as a refining influence. Do we not always believe in the man or woman, be they ever so bad, who loves flowers? We are sure there is something in them to appeal to. "Visit a children's hospital and see how the little sufferers turn their pale faces to the flowers as the flowers turn their faces to the sun."

It was once a seven days' wonder when Trinity church in Boston furnished \$500 worth of flowers for Easter Sunday, and a still greater marvel when Phillips Brooks, with his own hands, gave them every one to the mission children to be carried to their homes in the slums. Have we a sick friend? Straightway we send a bunch of flowers, and unless one has been a "shut in" and unexpectedly had a cluster of fresh, fragrant and graceful flowers brought at a time of hopeless depression and physical weakness, he can never know the sympathy and cheer which comes with them.

Think what a bunch of buttercups can be to a young person slowly dying of a hopeless disease, who knows his days are numbered, whose future is the "great beyond." The common flowers represent to him his whole past life, bringing sunshine in their color and memories of long sunny afternoons in meadows and fields, besides the feeling of being tenderly remembered in the

gift. Regret and sorrow are sweetened by these pleasant memories. The giver receives the blessing of those who give the cup of cold water "In His name."

Our modern weddings are incomplete without masses of flowers for the church service; doorways, piano and mantel are daintily trimmed at the house. Roses for bride and groomsman; bouquets for bridesmaids and train-bearer. "We wreath our dead with flowers; they are the best we have to offer; 'tis the last we can do for them." "Gethsemane was a garden."

In the arrangement of flowers there are some rules to follow but usually each person has individual taste. The tendency now is for finer flowers than formerly, depending more on graceful arrangement, in contrast with the stiff bouquets and short stems of the past. Another point emphasized now is one kind of flowers in each vase or bouquet instead of a variety of flowers, also an effort is made to use the foliage belonging to the flower instead of green of another shade. Long stems and tall, slender vases with plenty of foliage are in favor with city florists. We all know it greatly depends on the flowers we have and the surroundings. This is something I am very anxious to learn about and shall be more than interested in the coming discussion.

The custom of decorating dining rooms and tables is almost universal, especially when guests are invited, and there are hundreds of tables among our working people, where you always find some dainty wild flowers in spring and summer; banks of brilliant leaves take their places later, while bright geranium blooms, which grow and bloom for anybody, anywhere, brighten the plain rooms and frugal meals during the long New England winter.

## NATURE STUDY.

By G. HAROLD POWELL.

Now I wish to diverge somewhat from the general topics on your program and make a few remarks along another line. The programs of our horticultural meetings are usually well filled with subjects relating to the methods of fruit growing, such as tillage, spraying, varieties, marketing, and other questions closely connected with the practical side of the business, yet I sometimes feel that we are not giving enough attention to the cultivation of one of the most important products of the farm, the boys and girls who are to fill the places occupied by us in a few years. We may rejoice in the magnificent display of fruits and vegetables and the abundance of the general farm crops, but after all the most valuable crops you grow on your farms are your sons and daughters. We are taught that we must spray better, cultivate better, know more about the insect pests and fungous diseases with which we have to contend, understand more of the chemical and biological activities within the soil, and yet do we pause and enquire how are we to get all of this information? We hear much in these days of the boys and girls leaving the farm--and we are glad when one does leave it to actually better his place in life—but do we stop and ask why the boys and girls are leaving the farm? I have only a few minutes to discuss this topic and can only touch on the outside of it, but I want to say that I firmly believe that one of the first steps necessary to meet the greater demands of modern fruit growing and farming, and to attract the best boys and girls back to farm life is to foster in every possible way a close sympathy between the boys and girls and everything that lives about them. If the boys of today have an enthusiastic interest in plants, in orchards, in meadows, in soil, in animals, from their earliest childhood to manhood, the modern needs of fruit growing and farming will take care of themselves, and less will be heard of the depopulation of rural districts. The trouble today is farm life appeals to the boy mainly through his biceps, and not through his intellect and heart.

How are the boys and girls to come in closer sympathy with everything around them? Not entirely through every day experience, nor through these meetings, nor the granges, nor

papers and bulletins. We believe the interest in farm life must be fostered by the public school, and that the environment of the boy and girl should form the basis of his education. We would not teach agriculture or horticulture as such in the public school, but we would bring the life of the orchard, the stock yard, the brook, the forest into the every day experience of the children, through the various studies already in the school room. We would make Nature Study the basis of a large part of the intellectual training of our young people.

The time will not allow of a discussion of the methods of teaching nature study, or of the preparation of teachers for such work. We would emphasize however the importance of this movement throughout the country on the future agricultural and horticultural industries. There have been three great educational movements for the betterment of farmers in America, first, the establishment of the Land Grant Colleges, second, the establishment of an Agricultural Experiment Station in each state as a department of the Agricultural College, and third, the nature study movement in its relation to the public schools. The last movement has not risen to the national proportions of the first two, but it is liberally supported by state aid in several instances. New York State has been the leader of the movement and thousands of dollars have been appropriated, under the direction of Cornell University to interest boys and girls in nature, and in showing teachers how nature studies can be adapted to present school methods. Other states have followed the example of New York so that now there is under way one of the most important movements looking to the betterment of farm life. I have great faith in the present public school system but I am convinced that American agriculture will be touched more closely by it, when the school is able to draw its teachings largely from its environment, when the life of the farm is part of the material on which the boys and girls build up their education. If our boys and girls catch their inspirations from the life of the meadows, the orchards, the brooks, and the forests, the manifold difficulties that now beset the fruit grower, and which will increase rather than grow smaller, will be more intelligently met by the generations that are to come, and the public school will be a more potent factor in the permanent upbuilding of rural life.

MRS. DECOSTER:

Q. I would like to ask a question of the Professor, if he has in mind any appropriate text-book that he would advise, even before this matter is presented in a way to the public schools, that he would advise for the use of children at home. This subject has deeply interested me, and there was a move made and text-books were printed for that purpose and a partial law, I believe, requiring examination of teachers along that line, but it has become a dead letter law and the book was never generally introduced—it was called the Principles of Agriculture, written by a professor in this State—but I never knew of it being used in any of the public schools.

MR. POWELL:

No, I am unable to mention offhand any single book for teachers that covers the whole field of Nature study. There have been a large number of Nature study books written within a few years, many good, others very bad. I might mention a few books that are excellent for their purpose.

Lessons with Plants, by L. H. Bailey. McMillan & Co., New York.

First Studies in Plant Life, by G. F. Atkinson. Ginn & Co., Boston.

Insect Life, by J. H. Comstock. D. Appleton Co., New York.

The Principles of Agriculture by L. H. Bailey. McMillan Co., New York.

Nature Studies, by Mrs. Wilson. McMillan Co., New York.

The best nature study publications I have seen are the leaflets issued by Cornell University, and they are valuable because they are full of the nature study spirit and the teacher is sure to catch some of the inspiration that pervades them. These are sent at a small cost to teachers out of the state.

I would say as a general principal, and most emphatically, keep the books out of the school room. 'Teach from nature, not from books. The minute nature study is taught from a text-book, nature flies out of the window and the children learn by heart. The value of nature study is lost when it becomes mechanical. The spirit of out door life must be caught if nature study is to help out door life and make it more livable.

Books and leaflets should be used largely as guides by the teacher and occasionally by the pupil for supplementary reading or reference, but the book of nature is the principal text-book for the boys and girls.

Q. What I referred more to was something that would give the child a correct naming of all the parts which are necessary for the child to know. We know that many of the names of the parts, the common way we call them is not correct according to the language which great scholars use.

MR. POWELL:

Never mind the great names. The child will see the names of plants and of their parts from day to day and hear them used by the teacher and they become in time a part of the common language of the pupil. I was stuffed with big names in school and it took me a long time to get over the feeling that if I knew the name of a plant, I knew all about it.

### VARIETIES.

Inquiry was made concerning the York Imperial, and Prof. Munson replied by saying:

"It is a very good variety and one that is becoming quite prominent a little further south. The principal objection to it is that it is a little rusty and not highly colored enough for our northern markets."

Secretary Knowlton said Mr. Van Deman recently called his attention to this variety and observed that it deserved a trial in Maine. He believed it would do well there. He also called attention to some specimens of this variety he obtained from Buffalo through the kindness of Mr. Van Deman. He also referred to some Sutton Beauty, Rome Beauty and Missouri Ben Davis obtained from the same source. He also called attention to some fine specimens of Arctic sent in by Mr. O. K. Gerrish of Lakeville, Mass., and a plate of apples grown in East Dixfield. This variety, last year, sold in the Liverpool market for 27 shillings. It was sold as N. Y. Pippin, but he doubted the correctness of the name, which no one present had been able to correct.



## WHAT IS THE BEST VARIETY?

One other matter has impressed me strongly this afternoon. It is the frequency with which the question has been asked, "What is the best variety for this or that purpose?" Now the more we think of this question the more we will come to feel that after all it is largely a personal matter. Almost every man has a personal attachment for some variety, and that is the variety for him to grow, provided it has market value. The variety after all is of less importance than the man who grows it. If you are firmly convinced that Ben Davis is a high quality apple, then grow it. You will get more satisfaction out of it than in growing a spy that you grow under protest, even if you do deceive yourself. There is no such thing as a general-purpose, best apple. There are too many ideals in fruit growing today to have one sort fill every ideal. We must grasp this general principle in variety selection. The variety is largely an expression of its environment. Certain qualities that make the variety what it is are transmitted from its parents, but the quality, texture, flavor, color, time of ripening, growth of tree and other secondary characteristics are profoundly modified by the immediate surroundings of the variety. The Maine Baldwin is different from the Baldwin of New York or Delaware. It is still a Baldwin in the South but it ripens in September, rots badly, and differs in many minor essentials.

The tables in this room show that you have the best possible foundation for a successful apple culture. The color of your fruit cannot be surpassed by that in any other section of the country. The clearness of the skin, the high quality of the varieties, the large size, and remarkable keeping qualities stamp the Maine grown apples as among the very best in the world. Therefore I would say to you, use your Maine apples as a basis for your future apple culture, and stop looking the country over for new kinds. Take your Baldwins, Hubbardstons, Hurlbuts, Nodheads, Kings, Ribstons, Famueses, and other equally good kinds as a basis for a more extensive Maine apple culture. Select buds only from the best individual trees of each variety for your future orchard, cultivate intensively, prune judiciously, spray constantly, pack honestly, and you can make a name in the market

for Maine apples that will sell them at a good profit in competition with similar kinds from other less favorable localities. In closing my remarks on the variety question I cannot do better than emphasize strongly that the fruit growers of Maine have a distinct opportunity before them in the apple growing business, and I would encourage this society to foster that opportunity in every possible manner.—*G. Harold Powell.*

### THE FALL WEB WORM.

Mr. W. P. Atherton spoke of the prevalence of the fall web worm in the Middle States and inquired of Prof. Munson whether they were the same as ours, and how the pests could be controlled. In reply Prof. Munson said:

The web worm of the Middle States is the same as the web worm that works in Maine. There is no necessity of having the whole tree defoliated by this web worm. It is very conspicuous and by removing the branch when the web is first formed we may very readily control the pest. It is not necessary to spray. Indeed, as your informant said, it would not be desirable, it would not be practical to spray as late in the season as would be necessary to check this pest, but by simply removing the twigs when the webs first start the pest is very readily controlled.

Q. Please describe that web worm.

A. Well its is somewhat similar in appearance to the tent caterpillar in the spring, although it does not grow as large,—about an inch to an inch and a quarter in length, and it invariably forms a web over the whole twig and the web expands as the insect grows. It does not leave the tent to feed as do the tent caterpillars.

Q. If that limb is not removed, is there danger of the worms multiplying and destroying more of the orchard?

A. Certainly, and the web will continue to extend in size until the worms reach maturity.

Q. How would you dispose of the limb after it is taken off? Burn it?

A. Burn it,—yes, sir.

## THE DEXTER MEETING.

HON. STANLEY PLUMMER, Dexter.

I was interested in what the gentleman who has just taken his seat said about nature study in the public schools, about beginning this educational system in regard to horticulture and agriculture in these great lines of business, which are so important to our State, with the children themselves, in the earliest days. I will say so far as this state is concerned that in my youth there was a text-book introduced here called Hooker's Child's Book of Nature, and it was studied in our public schools under the old system of using text-books, which we in this State are fast outgrowing; but that did a good work, suited to the time and the circumstances of the occasion. Since then in our normal schools and teachers' institutes, stress has been laid upon the teaching of nature study, and the thing begins very early in the education of the children here in the State in most of the towns, especially where normal graduates are employed and where the kindergarten system is in vogue. We in this town have two kindergartens in operation today.

I have learned a great many things here. I have attended the sessions here. I have been very deeply interested. I feel, as a citizen of Dexter, very much gratified that this meeting has been brought here. I know it will do a great deal of good, and not only to our people here but to this whole community, because it will awaken an interest in these things. I have learned that it is a good thing to cut off a bough on which caterpillars get and to burn it up, not to throw it in the road to be driven over by the passing carriage, and I have learned a great many other things of practical benefit. This matter of packages to put up fruit so that it will go on the market is an important one for us. Why, here in this vicinity we have been ransacking right and left to get barrels, old discarded flour barrels, to put up our fruit in. We have had to pay extravagant prices in order to get them. We have been unable to find any sort of package to market our fruit in, because we depended on these second-hand barrels. This is all wrong, it is a crude condition of things and it should be rectified. A fruit grower ought to be able to go somewhere

and buy proper packages to put his fruit in, and I hope that will be one of the results of this agitation and of this meeting, but I must not take any more of your time.

REV. MR. GOULD:

I was brought up on a farm and spent my early days there, and I think sometimes that my interest in farming increases. I don't know but what I am a better farmer now than I was when I was living on a farm. I used to think I didn't like it very well, but when I hear such men as Mr. Hale talk about farming, Mr. Pope, and the other gentlemen who have been speaking, I think I like farming first rate.

But the word that came to me when Mr. Gilbert told me that he was going to call on me was this, the interest and value of such meetings as you have been holding here for all of our people, not simply for the people who are engaged in raising fruit but the people who are engaged in any kind of business; because in laying down the principles which must be the foundation for success in the raising of fruit, you have been calling our attention to the principles which must be the foundation for success in any kind of effort or enterprise. I don't know but Mr. Hale suggested the fact this afternoon, that a minister must work for his success along about the same lines that a man must who is growing apples. And so I felt that it was an occasion to learn, an occasion for getting inspiration and encouragement, for anybody to attend these meetings. I am very glad that the opportunity has been afforded to our community here to come in and listen to the reports and addresses and counsel and advice that you have given us at this time.

## LIVING FOR HEALTH.

By Mrs. ALONZO TOWLE, Freedom, N. H.

Phillips Brooks says: "The duty of physical health and the duty of spiritual purity are not two duties, they are two parts of one duty, which makes the most complete life that human beings can live." We start with this hypothesis, the keeping or getting of health is one part of our highest and most binding duty. To make the body a fit temple for the spirits, indwelling is a sacred obligation. For what have the leaders of men always been noted? Has it been for courage? Some ignorant and uncultured have been truly brave. Has it been for refinement? Many isolated and unknown have been most refined. Has it been for morality? Not always. One may possess all these qualities and not be at the front. With other qualifications he must have enormous nervous vitality. That which enables him to withstand long hours of close application, attention to details, and power to resist influences and temptations. We decide then that it is nervous vitality that tells. The sources of this vitality are food and air transformed by bodily functions. These functions being powerfully affected by the mental attitude of the individual, also by exercise, rest, sleep and other personal habits. That we make mistakes in our food economy is no longer a vague theme to be passed over thoughtlessly. One class eat too little, another too much. The wear and tear of an active life requires a class of food stuffs that to the brain worker would be a burden, causing dearth of thought and darkness of mind. Still the majority eat too much and too often, beside being excessive in quantity, food is often of low value or combined to be useless.

We who advocate temperance are altogether too narrow in our interpretation. It should not only mean abstinence from alcoholic beverages but abstemiousness in partaking of food. There is more sickness and untimely deaths from over-eating than from over-drinking. One physician says: "It is no exaggeration to state that fully 90% of all the population eat vastly more than they ought. The intestinal tract is overloaded causing auto-intoxication or self-drunkenness by food. The toxic matters from this mass of decaying food causes nearly all the ills to

which flesh is heir, among which are insanity, meloncholia and violent paroxysms of temper in both children and adults. To those who have passed middle life, these accumulations and obstructions mean many serious diseases.

In all man's activities we find expression of thought, consciousness, and power of choice. This power makes us in a large measure arbitors over our own destinies physically and enables us to leave to posterity something better than gold, health with a knowledge of the laws governing a hygienic life. While all along the food line we fully understand that "one man's meat may be another's poison" there are a few tried and proved facts that hold good, proved even by the exceptions. Fruits are an essential in our diet, owing to their medicinal and curative qualities. Fruits, nuts, certain kinds of vegetables and cereals are best adapted to give the greatest amount of force with the least output of energy. Next in order come the pulses—peas, beans and lentils. They tell us that grapes may be given in such large quantities that the organism will absorb so much of the liquids that it reaches every part of the system restoring to a healthy state of functional activity. There is no fruit of the earth which enters so largely into the appetizing plans of the household and public as the apple. To those of sedentary habits it is a daily need. One of our senators is said to be a marvel in the amount of work he performs in the Senate though over sixty-five years old. He says it is owing to his daily lunch of apples which he has taken exclusively for years. Beside apples and grapes are the delicious pears, luscious peaches and all the small fruits. Fruits are not only wholesome but delicate and nice, easy to serve and always relishable. It would be far better to let them take the place of our desert of rich pastry.

There was, at one time, a wide-spread report that German soldiers were to be supplied with sugar as a part of their daily rations. It caused quite a number of a certain class to partake of extra quantities, saying "it must be that lots of sugar is good for us." Different conditions call for different treatment. Soldiers upon a march in cold weather in a severe climate require heat-producing food. Sugar produces heat and energy beside is easily transported. An extra supply for us is but adding fuel to a fire already well supplied if our diet is what is best for us. The digestive organs will elaborate sugar from nearly all fruits,



cereals and vegetables, we have no need of a large extra allowance. Bread, the staff of life, the mainstay of humanity from earliest date, is so important an article of diet to all, that the systematic extraction of the brain-sustaining phosphates, leaving it little better than starch, calls for an entire change. While our population may increase at the rate of 100%, brain and nerve troubles are increasing at the rate of 600%. The immediate cause is a lack of brain nutrition. Primarily the lack is in the bread we eat. The most valuable part of the grain lying in the outer covering. A brain cannot act with vigor unless fed. Brain starvation is the one cause of the craving for stimulants that one class have to meet. "Tell me what you eat and drink and I will tell you what you are" is not a very old or far-fetched adage. Edison says, "He who eats rice only, thinks rice only." Working people have by hard experience, learned certain dietetic usages. Bread and milk, pork and beans, meat and potatoes, chicken with rice or dumplings, eggs on toast, oatmeal with cream, for thin workers have the best results and they have something like the right combination. While faulty, viewed from a scientific standpoint, they are preferable to those dishes concocted to tempt the appetite because they taste so nicely. While advising the cutting down of our meat-eating some will object, bringing the old Hebrews as an example of a sturdy, healthy race of flesh-eating people. At first thought, it seems that is true. Quite the reverse is the fact. Their diet, like that of all Orientals, was simple, light and mainly of vegetable origin, the staple being bread, made from the whole grain or from rye with the flour of millet, beans or lentils added, making a perfect food.

Fruit was abundant, also vegetables, with honey and oil. They were pretty good hygienists from necessity. We have here as article No. 1 under Living for Health, to eat less food, of better combination, masticate thoroughly, drinking only pure water.

New England people can well follow the last prescription. From every hillside bubbles and sparkles pure, sweet water. Here and there may be found mineral waters of great value. The time was not so long since the people were drinking spirituous liquors as an every-day beverage. We have had to take our temperance reform by installments. At first it provided for breweries for those who were reforming, next in order was a cutting off of all beer and cider-making, but prescribed strong

coffee in its place. One noted temperance worker it is said, would get away with twenty cups of strong tea in as many minutes. Now hygienists say tea and coffee should take their proper places with all other stimulants and nervines.

The second source of vitality is the air. The importance of proper breathing has been recognized in all ages. In many religious systems the breathing has occupied first place as a means of training in self-control. The breath means life. Without food we may live forty, fifty or sixty days. Without liquids for several. Of all the essentials to life the oxygen of the air is most important. The more we breathe the more oxygen. The more oxygen the more life. Throughout the animal kingdom from the mouse that breathes 150 times in a minute to the elephant that breathes six times, the same rule holds good. The stronger the animal, the deeper and slower it breathes. Our great men of all times and countries, our Napoleons, Martin Luthers, Cromwells, Websters, Gladstones and Bismarcks have all been deep chested, full breathing men with well-developed, active lungs, the consequence being vitality and the force that comes from vitality. In an examination of over a thousand men and women, less than one per cent. made proper use of their lungs. Of all the vital activities the breathing is most under the control of the will. When chests are sunken and lung capacity small, a few months patient, persistent work under proper direction will, in most cases, show improvement in both form and vitality. Shoulders are appendages of the chest. Rounded or stooping, they can never be made to take their normal place until the chest is expanded and uplifted by active lungs. One hindrance the business women of today will be obliged to meet is the condition of business places. Many reek with foul air, bad ventilation and unsanitary surroundings. The mass of women do not hold their health as dear as they ought. Even the housekeeper clings too much to her own fireside, especially in cold weather. The woman of vigorous constitution may be able to pull through, but most need a daily constitutional to feed brain and nerve with pure oxygen. Some say they are too tired when the time presents itself, that they cannot do this, too tired to walk and breathe vigorously enough to expand the lungs. Breathing does not tire, but strengthens heart and lungs, purifies the blood, and stimulates the entire system. Oxygen is a far better tonic and

health-preserver for women than any drugs or stimulants. Breathing affects nutrition in several ways. It hastens the peristaltic movements of the stomach and intestines, it oxydises the blood, then removes from the body through the lungs certain poisonous waste matters, the retention of which weakens the organism. Sleep has an important part in increasing vitality. Better sleep is needed in some cases, more in others, more and better in still others. If we reform our diet, sleep in well-ventilated bed-chambers, breathe well, and practice muscular relaxation, that is, let go of ourselves and allow the bed to hold us, instead of trying to hold ourselves, with a fairly good conscience, we shall sleep the sleep of childhood.

Article third is as important as the other two. It is: To labor every day with the muscles, with the mind and with the moral powers. To labor more is not a general need with agricultural people. To labor less and recreate more would be far better for hard workers. Farmers' families have physical exercise enough for growth and strength. Those of other vocations have had to invent something in exercise equivalent to work. He who does out of door work is sure to breathe more nearly correct than any other. If he is not always judicious in food selection and combination, he will take better care of it than any other class and is less likely to suffer from it. Sometimes we workers wonder if our burden of work is not heavier than others' burdens. We frequently feel that our cares are more numerous and annoying than those of the other half of the world. Do not allow such ideas to find resting place in your minds for an hour, it is not the truth. It has been my privilege to know both sides of the question. Providence has used some of us better than we should have used ourselves if we had control of circumstances. There are many people of wealth who would give a part of their gold and all of their dull days, miserable feelings and idle hours for the ability to do physical work, digest their food, sleep well, following it by still more work. There is as much comfort and satisfaction coming to men and women as they look upon their goodly herds and crops, gather around them their broods of birds and watch the peculiar workings of their families of bees as comes to any people living. The breadth of living that comes to one who appreciates the country for all there is in it, has not its equal in any city or town. At one and the

same time we are getting good health and giving to the world a valuable product. As we have progressed the old sentiment, that to do manual labor is degrading, has died out.

It has always been an insult to genius, talent and industry, the powers that rule the world. Progress that assumed the well-being of the human race, to be their end of education was embodied in the thought of extending man's empire over matter. To make men perfect physically or otherwise we never can. To make them more comfortable is the end of all right effort. For sixty generations those old ancient philosophers worked upon the body and mind. What did they accomplish for our practical help? Since Queen Elizabeth, more has been done than in all the years from Plato and Socrates down the line. Gladstone says, "From 1800 to 1850 there was as much permanent wealth produced as during the 1800 preceding years." One hundred years ago there was no science worth the name. Since then men have been studying and investigating with the object of doing something. It has already lengthened life, wiped out many diseases, made life healthier and therefore happier. They called it a curse that "in the sweat of his brow man must eat his bread." That is the only way he can healthfully and happily eat it, then it is his—he has a right so to do. We are learning that crime is a disease or the result of disease. Crime is the costliest product of our civilization and is increasing in this country to a greater relative degree than in any others except Spain and Italy. New York spends six millions of dollars for police and prisons while only a little over half that amount is used for educational purposes. If "an idle man's brain is satan's workshop" then the first act for us is to furnish work to those who will work, making the idle, indolent and unbalanced do something if under surveillance. We should be in earnest, for these crimes called disease, or this disease called crime, there must be found a remedy or the whole country will be made to suffer again and again. Our America, our United States is a magnificent gift, one of inheritance. If we still sustain our former characteristics and keep progressing we shall see to it that the deep-breathing of our patriotism throws out all poisonous and noxious elements, that the good red blood of our forefathers makes us strong and staunch for a liberty not to be confounded with license and for safety, unguarded which should be the pride of every republic.

Teaching always that work makes mind and character. Not overwork, but employment that is worthy. Teach that whatever dignifies life and makes that labor sweet, whatever awakens in us an enthusiasm for heroic and just acts is a part of the grand whole. The power to dare and bear for what is right, to stand firmly, then go, these qualities are a large part of our recommendation to the world and out of all struggles we may come with more enduring fiber. We have heard it said so often that "brain power rules the world," that we sometimes forget the action and reaction between brain and muscle and the close relationship between mind and body? We scarcely have it in mind that muscle fiber is doing its part in digestion and respiration and sending the life-giving current to every organ, tissue and cell. That it is important in controlling all mental processes that result in intellectual effort, some learn alas, too late.

Emerson says: "See only that thou work and thou canst not escape the reward. Whether thy work be coarse or fine, planting corn or writing epics, so only it be honest work done to thine own approbation it shall earn a reward to the senses as well as the thought." Ruskin says: "So with our youths. We once taught them to make Latin verses and called them educated, now we teach them to leap, to run and hit a ball with a bat and call them educated. Can they plow? Can they sow? Can they plant at the right time or build with a steady hand? Is it their effort to be chaste, knightly, faithful, lovely in word and deed? Indeed it is with some, nay with many and they are the strength of the English nation." May we, Americans, have not less, but more of that real culture which is omnipotent over human destiny. So that when the centuries have rolled away, our civilization passed out giving place to another or others, we may be seen clearly in the looking backward and felt for our strength, health and symmetry, chosen and immortal for practical helps through all after changing years. Yes, changing, continually changing.

God only is unchangeable, the same yesterday, today and forevermore. Go back to the morning of history and guided by modern thought let the mind retire into those ages long past and you have not found the birthplace of the Eternal Father. Then as now, His mercy, His justice, His love and especially His physical laws were the same without shadow of turning.



## JOHN W. TRUE.

Some years ago a man of New Gloucester birth said to the writer, that "to be well born was more than half a man's success." So have I often thought of this other New Gloucester man of whom it is a pleasure to write at this time. Being born in New Gloucester was a fortunate beginning, for I know of no rural Maine home more pleasantly located than his. His parents were both of strong character and sterling integrity. Such was the inheritance of John W. True.

He was born in New Gloucester, August 4, 1848, where he spent his boyhood days. He was educated in the common school and two years at a private school in his own town. At the age of nineteen he went to Boston, where he was employed in the express and grocery business for seven years. On the death of his father in 1874, he returned home where he has lived ever since.

Mr. True married Carrie Murdock of Springfield, Mass., in 1873. They have four children, two of whom are graduates of Bates College.

He is a successful farmer. When he began farming for himself, the farm carried ten head of cattle and one horse. Year by year he has improved the farm to such an extent that he now has thirty-five head of cattle and three horses to do the work and a small flock of sheep. The old orchard has been added to until he has one of the best cultivated orchards in the State. Many of the trees are too young to be large producers, though he has had good crops for several years, and I know of no orchard in Maine more promising than this, in the development of which he and his family have taken so much pleasure and satisfaction. Nor is this all, for in recent years he has had an ideal farmer's fruit garden stocked with all the fruits needed by the family with a surplus for his neighbors.

He has been exact in his farming operations, and they have been conducted in a business-like manner. There are few farmers who can tell from what particular line of work they have made money; but Mr. True has carefully systematized his farming so that he knows not only what pays but how much this or that crop has cost and how much he received for it. Farming would become more profitable if more of this work was done.



He has been a man among men, and his neighbors and townsmen have delighted to honor him with official responsibilities. For nineteen years he was a member of the board of selectmen, sixteen of which he served as chairman. Several times he was elected chairman without a dissenting vote. New Gloucester is known to be one of the best governed towns in this State, and it is certainly a high tribute to hold the highest office so many years. The town has long been out of debt, has long had the best of schools, the best of highways, a good town house, fine public library built and maintained by town, and all the other good things that have contributed so largely to make New Gloucester one of the most popular farming towns in Maine. For two years he was town clerk, and the past three years he has been town treasurer. He is a justice of the peace, and is now a deputy sheriff of Cumberland county.

Mr. True has long been identified with the agricultural interests of the town, county and State. For several years he was trustee of the Cumberland County Agricultural Society and a member of the Board of Agriculture. He was elected a member of the executive committee of the Pomological Society in 1888, and was elected year after year until he was chosen president of the society in 1895 where he served four years, when he was again elected a member of the executive committee. At our last meeting he declined re-election. Mr. True's associates in this society have always had the fullest confidence in his judgment, and all the duties assigned him have been well performed. His influence in building up the society has been far reaching. When he became an officer of the society, there was a debt hanging over the treasury and a deficiency in the permanent fund. So well managed has the society been during these years he has the satisfaction of retiring from office with the society's debts all paid and a balance in the treasury, the deficiency in the permanent fund made up and the fund safely invested. Less than a hundred life members were enrolled when he became a member of the society; now there are 141. In his official relation to the society he has always advocated the best interests of the organization, and in all his words of counsel he has advocated improved methods and progressive work. He was most convincing in his words to fruit growers for what he told them grew out of his own experience among his trees and plants.

D. H. K.



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